

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

REPORT

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

Sanitary Condition of Newcastle-upon-Tyne,

WITH

TABULAR RETURNS

OF THE

SICKNESS AND MORTALITY

DURING THE YEAR 1888.



Newcastle-upon-Tyne:

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1889.

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To MR. COUNCILLOR T. B. WINTER, CHAIRMAN OF THE SANITARY
COMMITTEE OF THE CORPORATION OF NEWCASTLE-UPON-TYNE.

SIR,

Herewith I beg to submit to you my Annual Report for the year 1888.

As regards the statistics of disease and death the Report is eminently satisfactory. The general rate of mortality (20·5 per 1,000) is the lowest of which I have any record, the nearest to it being that of 1881 (21·7). The deaths from the Zymotic class of diseases (see pages 8-9) are only two-fifths of the number in the previous year. The improvement in this class, though greatest under the heads of Measles and Diarrhoea, is also large as regards fevers of all kinds and Whooping-Cough. Diphtheria is the only disease of this division in which the mortality equals that of the previous year.

Bronchitis and Pneumonia (page 10) which last year, owing principally to vicissitude of weather, attained a high rate of mortality, have, under the more equable temperature of the year under report and especially at its extremes, regained what may be considered their normal position as factors of the mortality.

The rate of infant mortality is more than 22 per cent. below that of the previous year, and has never before been so low within my experience. In two of the last sixteen years (1879 and 1881) the actual number of deaths under one year of age was indeed less, but the rate per cent. to births registered during the same period was, on each of these occasions, greater than during 1888. There has also been a large decrease of uncertified deaths (pages 11 and 43), the number being little more than half that of the year 1887. A great majority of these deaths are those of infants.

With regard to cases of infectious disease notified under the Local Act of 1882 (page 11) the reduction is still more gratifying, being 43 per cent. below that of the previous year and 48 per cent. below the average of the previous five years. This improvement is shared by each of the eight diseases notified, with the exception of Diphtheria, in which a slight increase (97 against 90 last year) is recorded.

The returns of notification of infectious disease are now, for the first time, tabulated according to the Municipal Wards of the City.

The rapid and steady increase of Housebuilding in the City during recent years, to which I directed your attention in last report, has been exceeded during 1888, when accommodation for 1,334 families (page 31) was provided as compared with dwellings for 1,114 families built in 1887. This increase is most striking in Byker as regards houses in flats (for 288 families against provision for 238 in 1887); and in Heaton as regards self-contained dwellings (228 against 59). Housebuilding has also been pretty active in Westgate (self-contained dwellings and flats) and in All Saints (flats).

I am unable to report improvement as regards the sanitary defects noted on plans examined by me. Thus, by the list of those defects on page 32, the number of small bedrooms and bedrooms without fire-place noted is much larger last year than the year before.

The practice of reducing attics in size in order to comply with a defective bye-law, to which I referred in last Annual Report, continues and will continue so long as that bye-law remains in force. The plans examined shewed also an increase of yards deficient in space.

In accordance with a resolution of the Sanitary Committee passed in the early part of the year—"That the City Engineer be empowered to approve plans for alterations which have been sanctioned or ordered by the Medical Officer of Health"—a number of minor structural sanitary works not included in the foregoing have been carried out.

As part of the work of the year I append—

- 1.—Special reports on two outbreaks of Scarlet Fever in connexion with different dairies at Gosforth. The action with respect to the third dairy at Kenton implicated on account of Scarlet Fever, and the subsequent claim for damages, and the compensation awarded by the Council on the recommendation of the Sanitary Committee, are set forth in the body of the general Report (pp. 22-23).
- 2.—A copy of the Report on the City Hospital for Infectious Diseases, opened in September last, as the result of long-continued and persevering effort on the part of your Committee. My own first Report advocating better Hospital accommodation for the town was submitted to your Committee in May, 1874.

3.—A copy of the principal sanitary proposals submitted by me to Committee for consideration in connection with the projected Improvement Bill. As application to Parliament respecting this Bill was deferred these proposals are put on record for future use.

I have the honour to be,

Sir,

Your obedient Servant,

HENRY E. ARMSTRONG,

MEDICAL OFFICER OF HEALTH.

Health Department,

Town Hall,

Newcastle-upon-Tyne,

9th March, 1889.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

REPORT, 1888.

(A.)—GENERAL STATISTICS.

DURING the 52 weeks ended 29th December, 1888, 6,011 births and 3,261 deaths have been registered in the City. The births represent a rate of 37·8 and the deaths a rate of 20·5 per 1,000 of a population of 159,003 at all ages, as estimated by the Registrar General to the middle of the year.

The following is a Table of the recorded rates of mortality for previous years :—

RATES OF MORTALITY PER 1,000 POPULATION OF NEWCASTLE-UPON-TYNE.

A.D.							Rate per 1,000.
1868	...	...	...	...	...	...	27·1
1869	...	...	...	...	...	...	27·2
1870	...	...	...	...	...	...	25·4
1871	...	...	...	...	...	...	32·2
1872	...	...	...	...	...	...	26·3
1873	...	...	...	...	...	...	30·1
1874	...	...	...	...	...	...	29·2
1875	...	...	...	...	...	...	26·1
1876	...	...	...	...	...	...	22·7
1877	...	...	...	...	...	...	22·3
1878	...	...	...	...	...	...	23·7
1879	...	...	...	...	...	...	23·5
1880	...	...	...	...	...	...	22·3
1881	...	...	...	...	...	...	21·7
1882	...	...	...	...	...	...	23·0
1883	...	...	...	...	...	...	25·4
1884	...	...	...	...	...	...	23·5
1885	...	...	...	...	...	...	26·0
1886	...	...	...	...	...	...	22·2
1887	...	...	...	...	...	...	25·2
1888	...	...	...	...	...	...	20·5

The number of births and deaths in the different Registration Sub-districts of the City during 1888 and the previous year is subjoined :—

REGISTRATION SUB-DISTRICTS.	BIRTHS.		DEATHS.	
	1887.	1888.	1887.	1888.
Westgate	...	2,759	2,521	1,611
St. Andrew's	...	565	560	414
St. Nicholas'	...	269	244	437
All Saints'	...	917	950	602
Byker	...	1,613	1,736	889
City	...	6,123	6,011	3,953
				3,261

Births and
Deaths (all
causes).

Deaths in Public Institutions.

The deaths in Public Institutions during the year under report are as follows :—

DEATHS IN PUBLIC INSTITUTIONS IN THE DIFFERENT REGISTRATION SUB-DISTRICTS
DURING THE 52 WEEKS ENDED 29TH DECEMBER, 1888.

REGISTRATION SUB-DISTRICTS.	INSTITUTION.	DEATHS.
Westgate	{ Workhouse St. Joseph's House... ...	196 30
St. Andrew's	{ Moor Small-pox Hospital ... Magdalene do. ... Hospital for Incurables ...	Nil. 3 2
St. Nicholas'	{ Infirmary Fever Hospital Children's do.	194 4 4
All Saints'	Nil.	...
Byker	Nil.	...
	Total	433

Deaths from
Miasmatic order
of Zymotic
Diseases.

The condition of the different Registration Sub-districts in regard of mortality from the Miasmatic order* of Zymotic diseases during last, as compared with the preceding year, is as follows :—

SUB-DISTRICTS.	Number of Deaths from Miasmatic Diseases.	
	1887.	1888.
Westgate	117	69
St. Andrew's	35	16
St. Nicholas'	36	11
All Saints'	95	18
Byker	122	47
City	405	161

* See Appendix A, Table II. In uniformity with the Classification of causes of death, adopted by the Registrar General, Diarrhoeal diseases are now excluded from the Miasmatic order of the Zymotic class of diseases. The deaths from these diseases are stated on the Table on next page.

NUMBER OF DEATHS IN 1888.

REGISTRATION SUB-DISTRICTS AND CITY.

WESTGATE, †	ST. ANDREW'S.	ST. NICHOLAS'.	ALL SAINTS'.	BYKER.				CITY.
				1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	
Small-pox
Measles	4 2 2 ...	8	...	...	...	10
Scarlet Fever (Scarlatinæ)	...	2 ...	3 1 6	...	1 1 2	...	1 1 3	...
Diphtheria	3 3 6 15	1	...	...	5	...
Whooping-Cough	3 11 6 9	29	3 3 ...	1 7	2 ...	1 3 7
Typhus Fever	1	3	...
Enteric (or Typhoid) Fever	...	2 3 3 3	11	1	2 2 5	...	1 1	...
Simple Continued and Ill-defined Fever	...	1 ...	1 ...	1 1 2	1 ...	1	...	...
Simple Cholera
Diarrœa, Dysentery	...	2 3 13 14	32	6 4 10	...	2 2 ...	2 4 ...	10
TOTALS	...	17 22 30 33	102	5 3 10 9	27 1 2	4 9	4 5 10 12	31 13 10 13 20 56 40 42 65 78 225

* Corrected by distribution of those occurring in the Fever Hospital, Bath Lane, to the District from which each patient was removed.

† Exclusive of Benwell and Fenham.

Mortality from
chief Zymotic
Diseases,

Diarrhoea

The most fatal Zymotic disease has been Diarrhoea, from which 66 deaths are returned. Of these, 26 occurred in the third quarter and 32 in the fourth quarter of the year.

Bronchitis and Pneumonia.

DEATHS FROM BRONCHITIS AND PNEUMONIA.

A.D. 1888.	REGISTRATION SUB-DISTRICTS.					CITY.	Number in previous year (1887).
	Westgate (Workhouse)	St. Andrew's.	St. Nicholas' (Infirmary).	All Saints'.	Byker.		
1st Quarter ...	44	12	10	22	26	114	173
2nd " ...	53	7	12	14	21	107	110
3rd " ...	28	10	7	11	11	67	81
4th " ...	63	16	9	23	31	142	205
Year ...	188	45	38	70	89	430	569
Number in previous Year (1887) ...	214	64	46	114	131	569	...

INFANT MORTALITY.

Infant Mortality.

The number of Infants dying before the completion of the first year of life is 827, as compared with 1,066, 951, and 1,007 respectively, in 1887, 1886, and 1885.

REGISTRATION SUB-DISTRICTS.	No. 1. Deaths of Children under 1 year of age.		No. 2. Rates per cent. of Deaths under 1 year to Births registered.	
	1887.	1888.	1887.	1888.
Westgate ...	436	359	15·8	14·2
St. Andrew's ...	108	73	19·1	13·0
St. Nicholas' ...	66	43	24·5	17·6
All Saints' ...	163	138	17·8	14·5
Byker ...	293	214	18·2	12·3
City ...	1,066	827	17·4	13·8

The following are the most prominent diseases causing the infant mortality :—

	DEATHS.	
	A.D. 1887.	A.D. 1888.
Whooping-Cough ...	28	25
Diarrhoea, Dysentery ...	68	32
Premature Birth ...	107	88
Inflammation of Brain or Mem- branes ...	27	24
Convulsions ...	140	121
Bronchitis ...	107	82
Pneumonia ...	53	35
Debility, Atrophy, and Inanition...	215	216
TOTAL	745	623

UNCERTIFIED DEATHS.

That is to say, deaths registered without any proper medical certificate having been given or inquest held, have contributed 68 cases to the general mortality, as compared with 125 during the previous year. See Appendix A, Table IX.

Uncertified Deaths.

MARRIAGES.

During the year ending March 31st, 1888, the number of marriages registered in Newcastle-upon-Tyne* was 1,829.

RETURN OF MARRIAGES IN NEWCASTLE-UPON-TYNE DURING THE PAST
10 YEARS (1879-88),

Year ended March 31.	Number.	Year ended March 31.	Number.
1879	1,646	1884	1,902
1880	1,700	1885	1,730
1881	1,717	1886	1,729
1882	1,428	1887	1,705
1883	1,872	1888	1,829

INFECTIOUS DISEASE INQUIRY.

CASES OF INFECTIOUS DISEASE KNOWN TO THE HEALTH DEPARTMENT.

During the year under report a total of 994 cases of Infectious Diseases† have been made known to the Medical Officer of Health by medical practitioners, under the "Newcastle-upon-Tyne Improvement Act, 1882," and otherwise, including the following:—

Notification of
Infectious
Disease.

	CASES KNOWN TO THE HEALTH DEPARTMENT.	
	A.D. 1887.	A.D. 1888.
Small-pox	7	...
Typhus	37	4
Enteric Fever	325	122
Simple Continued Fever	86	17
Scarlet Fever	1,208	749
Diphtheria	90	97
Puerperal Fever	10	5
Relapsing Fever ... ... ...	...	...
TOTAL	1,763	994

* Superintendent Registrar's district, which includes the Municipal area and the Townships of Benwell and Fenham.

† A street list of the cases is given in Appendix A, Table X.

The following Tables shew the monthly returns of the diseases before-named in the respective Wards of the City :—

Typhus Fever
in different
Wards, &c.,
during successive
months.

TYPHUS IN NEWCASTLE-UPON-TYNE, 1888.

WARDS.	NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.												
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Elswick East
Elswick North
Elswick South
Arthur's Hill
Westgate North	1	...	...	...	1
Westgate South
St. Andrew's North.
St. John's
St. Nicholas'
All Saints' West	1	...	...	...	...	1	1	3
All Saints' East
All Saints' North
St. Andrew's South.
Jesmond
Heaton
Byker
Total	1	...	...	1	...	1	1	4

Enteric Fever
in different
Wards, &c.,
during successive
months.

ENTERIC FEVER IN NEWCASTLE-UPON-TYNE, 1888.

WARDS.	NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.												
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Elswick East	2	...	...	2	2	1	...	...	7
Elswick North	1	...	...	1	1	...	...	...	...	...	3
Elswick South	...	2	1	1	1	...	4	1	2	1	1	...	14
Arthur's Hill	...	1	1	...	3	1	1	...	...	...	2	...	9
Westgate North	3	1	...	1	2	...	...	2	2	11
Westgate South	1	...	1	...	...	...	2	...	...	5	9
St. Andrew's North.	...	1	...	...	...	...	...	...	...	1	...	...	2
St. John's
St. Nicholas'	1	1	...	...	...	...	...	...	...	...	2
All Saints' West	2	1	...	...	...	...	...	2	...	...	2	2	9
All Saints' East	1	2	...	...	1	...	...	...	...	4
All Saints' North	5	6	1	2	...	...	2	1	1	...	...	...	18
St. Andrew's South..	1	...	...	...	...	...	1	2	2	...	2	1	9
Jesmond	1	1	...	...	...	...	...	...	...	...	2
Heaton	...	2	1	...	1	1	...	...	...	...	...	...	5
Byker	...	4	5	...	2	...	1	2	1	2	1	...	18
Total	...	17	17	5	13	9	3	10	13	10	5	10	122

CONTINUED FEVER IN NEWCASTLE-UPON-TYNE, 1888.

Continued Fever
in different
Wards, &c.,
during successive
months

NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.

WARDS.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Elswick East
Elswick North
Elswick South	4	1	...	1	...	...	...	...	6
Arthur's Hill
Westgate North	1	...	...	...	...	...	1	...	...	...	...	...	2
Westgate South	2	...	...	...	...	...	...	...	...	...	...	...	2
St. Andrew's North.	1	...	1
St. John's
St. Nicholas'	1	...	...	...	...	...	...	...	...	...	1
All Saints' West
All Saints' East	2	...	...	...	...	...	...	2
All Saints' North	1	1
St. Andrew's South.	1	...	...	...	...	...	1
Jesmond
Heaton	1	...	...	...	...	...
Byker	1
Total	...	3	...	1	...	4	3	2	2	...	1	1	17

SCARLET FEVER IN NEWCASTLE-UPON-TYNE, 1888.

Scarlet Fever
in different
Wards, &c.,
during successive
months.

NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.

WARDS.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Elswick East	3	4	1	3	2	1	...	6	3	3	3	1	30
Elswick North	4	2	2	4	7	4	7	6	4	3	4	2	49
Elswick South	2	7	2	...	2	6	8	13	5	9	1	5	60
Arthur's Hill	3	5	4	...	2	2	5	10	7	10	1	4	53
Westgate North	2	5	1	2	1	1	4	3	1	1	4	...	25
Westgate South	...	2	2	2	...	...	4	2	1	9	1	...	23
St. Andrew's North	2	3	...	3	1	1	6	2	1	2	4	...	25
St. John's ...	1	...	...	1	...	...	...	2	...	...	...	...	4
St. Nicholas'	...	...	...	1	1	...	1	1	...	...	1	...	5
All Saints' West	1	...	...	...	...	1	1	...	...	1	...	...	4
All Saints' East	4	3	12	3	1	2	21	7	6	1	...	...	60
All Saints' North	2	3	3	1	2	3	21	7	2	7	4	5	60
St. Andrew's South.	...	1	6	1	...	...	11	1	2	4	2	...	28
Jesmond	...	15	11	...	4	2	9	47	5	2	5	2	105
Heaton	...	4	5	4	3	3	11	11	8	7	9	3	71
Byker	...	10	5	10	5	6	6	5	15	27	26	16	147
Total	...	53	56	47	33	30	39	152	91	69	88	52	749

Diphtheria
in different
Wards, &c.,
during successive
months

DIPHTHERIA IN NEWCASTLE-UPON-TYNE, 1888.

WARDS.	NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.												Total	
	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.		
Elswick East	...	4	...	...	1	...	...	1	2	...	1	...	9
Elswick North	...	1	...	...	...	1	...	...	...	...	3	...	5
Elswick South	...	1	...	1	1	...	...	1	...	3	...	...	8
Arthur's Hill	1	...	...	...	...	1	
Westgate North	1	...	1	...	...	...	...	...	2	
Westgate South	1	...	...	...	...	1	1	...	...	3	
St. Andrew's North.	1	...	...	...	...	...	...	...	...	...	...	...	1
St. John's	1	...	...	...	...	1	...	...	...	...	2	
St. Nicholas'	
All Saints' West	...	1	...	...	...	...	...	...	...	...	...	...	1
All Saints' East	1	...	...	...	...	...	...	1	...	...	2	
All Saints' North	...	1	1	...	...	...	...	...	...	...	...	...	2
St. Andrew's South	
Jesmond	8	...	3	8	...	...	...	...	2	21	
Heaton	1	2	...	1	...	1	...	2	...	...	7	
Byker	...	1	4	3	...	5	...	3	1	5	9	2	33	
Total	...	10	5	7	13	7	5	9	8	4	12	13	4	97

Puerperal Fever
in different
Wards, &c.,
during successive
months.

PUERPERAL FEVER IN NEWCASTLE-UPON-TYNE, 1888.

WARDS.	NUMBER OF CASES KNOWN TO THE HEALTH DEPARTMENT.												Total
	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
Elswick East
Elswick North	1	...	...	...	...	...	1
Elswick South
Arthur's Hill	1	...	...	...	...	...	1
Westgate North
Westgate South
St. Andrew's North	1	...	...	...	...	...	...	...	...	1
St. John's
St. Nicholas'
All Saints' West
All Saints' East
All Saints' North	1	...	...	1
St. Andrew's South.
Jesmond
Heaton
Byker	1	1
Total	1	...	1	1	...	1	...	1	5

AGES OF CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1888.

DISEASES NOTIFIED.	TOTAL.											
	Under 1 Year.	1 Year and under 2.	2 Years and under 3.	3 Years and under 4.	4 Years and under 5.	5 Years and under 10.	10 Years and under 20.	20 Years and under 30.	30 Years and under 40.	40 Years and under 60.	60 Years and under 80.	80 Years and upwards.	Age not stated.
Small-pox ...	...	...	...	...	...	...	...	...	...	...	...	...
Typhus Fever ...	...	...	...	...	...	2	...	1	...	1	...	4
Enteric Fever ...	...	...	1	2	4	6	13	34	15	9	28	13
Continued Fever ...	...	...	1	...	...	1	2	5	5	2	1	2
Scarlet Fever ...	17	34	66	74	75	266	279	106	27	43	17	4
Diphtheria... ...	2	7	11	13	12	45	20	7	3	9	6	6
Puerperal Fever ...	...	...	...	...	...	...	...	...	1	3	...	1
Relapsing Fever ...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL ...	19	43	79	91	94	326	340	133	41	85	37	23
												7
												994

Ages of Cases
Notified.

Deaths and Death-rates at different *A*etal- periods.

DEATHS AND DEATH-RATES, A.D. 1888, AT DIFFERENT ETAL-PERIODS.

AGES.	SMALL-POX.	TYPHUS.	ENTERIC FEVER.	CONTINUED FEVER.	SCARLET FEVER.	DIPHTHERIA.	PUERPERAL FEVER.	RELAPSING FEVER.	TOTAL.	Precentage of Deaths to Cases Notified.		
										Deaths.	Precentage of Deaths to Cases Notified.	
Under 1 year	100·0	5·9	100·0	2	15·8	3	15·8	
1 Year and under 2	8·8	57·1	...	18·6	8	18·6	
2 Years and under 3	7·6	91·0	...	19·0	15	19·0	
3 , , , 4	5·4	46·1	6	11·0	10	11·0	
4 , , , 5	16·6	4·0	50·0	6	10·6	10	10·6	
Total under 5 Years	15·4	...	40·0	4	14·1	46	14·1	
5 Years and under 10	17·6	2	...	14·3	4·7	16	4·7	
10 , , , 15	13·3	...	...	1	3·8	5	3·8	
15 , , , 20	2·4	1	2·4	
20 , , , 30	13·0	11	13·0	
30 , , , 40	8·1	3	8·1	
40 , , , 60	21·7	5	21·7	
60 , , , 80	50·0	1	50·0	
80 Years and upwards	
TOTALS ...	1	25·0	23	18·8	4	23·5	24	3·2	33	34·0	3	34·0
										60·0	...	60·0
										88	8·9	8·9

TYPHUS.

The undermentioned details refer to the 4 cases of Typhus during Typhus Fever. the year 1888.

Of the infected houses—

1	consisted of 1 room.
2	,, 2 rooms each.
1	,, 3 rooms.

Of the sick-rooms in the 4 different houses infected, 3 are returned as not at all isolated from the rest of the premises, the family either having direct access to, or living in the sick-room. In 2 cases removal to Hospital was effected.

5 occupants of the infected houses were employed at shops, etc., or in occupations elsewhere, as shewn on page 26.

In one instance the infected premises were over, and approached through, an undertaker's shop, whereby infection was liable to be spread to frequenters of the shop. The case was under private medical treatment. Removal to Hospital was not agreed to.

In one instance in Dispensary practice; of a case of Typhus in a crowded dwelling, removal to Hospital being opposed, a magistrate's order was obtained, and the mother of the patient was admitted to Hospital with her sick child.

ENTERIC FEVER.

The undermentioned details refer to Enteric Fever during the Enteric Fever. year 1888.

Fresh cases—

In 80 households—single cases	...	...	...	80
„ 9 „ 2 cases each	...	...	...	18
„ 3 „ 3 „ „	...	...	...	9
„ 1 household—4 „ „	...	...	...	4
„ 1 „ 6 „ „	...	...	...	6
				117
In 2 Public Institutions (see Table, page 24)	...			5
Total	...	...	...	122

Of the infected houses—

In relation to
Households, &c

14, or about 15 per cent., consisted of 1 room each.

40	„	43	„	2 rooms	„
20	„	21	„	3	„
20	„	21	„	4	„
					(or more).

Of the sick-rooms in the 94 different houses infected, 48 are returned as not at all isolated from the rest of the premises, the family either having direct access to, or living in, the sick-room. In 44 of the cases no means to prevent infection were being taken ; in 21 cases removal to Hospital was agreed to and effected.

102 occupants of the infected houses were employed at shops, &c., or in occupations elsewhere, as shewn on page 26.

The following businesses were carried on on infected premises, whereby infection was liable to be communicated to customers—

Character of Infected Premises, &c.	No. of		Remarks made at date of Inquiry.
	House-holds.	Cases.	
Confectioner's Shop ...	1	1	
Milk Purveyor ...	1	1	In this case the family had access to sick-room and no precaution was being taken.
Butcher's Shop ...	1	1	No precaution was being taken.
Provision Shop ...	1	1	

The various households affected were supplied with milk by a large number of dealers. Three dairies only supplied milk to more than one infected household.

In cases where more than one household had been supplied with milk from the same dairy, special inquiries were made from time to time. All the water supplied to the infected households is reported as being obtained direct from the mains of the Water Company.

CONTINUED FEVER.

Continued Fever. The undermentioned details refer to Continued Fever during the year 1888.

Fresh cases—

In 11 households—single cases	...	...	...	11
,, 1 household—2 cases	...	...	...	2
,, 1 ,,, 3 ,,,	...	...	...	3
				—16
1 case in 1 Public Institution (for particulars see Table, page 24)	...	...	...	1
Total	...	...	...	17

Of the infected houses—

In relation to
Households, &c.

2,	or about 15 per cent.,	consisted of 1 room each.	
8	„	62 „	2 rooms „
3	„	23 „	4 „ „ (or more).
<u>13</u>			

Of the sick-rooms in the 13 different houses infected, 9 are returned as being not at all isolated from the rest of the premises, the family either having access to, or living in, the sick-room. In 6 of the houses no means to prevent the spread of infection were being taken. Removal to Hospital was not agreed to in any of the cases.

16 occupants of the infected houses were employed at shops, &c., or occupations elsewhere, as shewn on page 26.

The following business was carried on on infected premises, whereby infection was liable to be communicated to customers:—

Character of Infected Premises.	Household.	Case.
Furniture Broker	1	1

SCARLET FEVER.

The undermentioned details refer to Scarlet Fever during the year 1888. Scarlet Fever.

Fresh cases—

In 331 households—single cases	...	...	...	331
„ 91 „ 2 cases each	...	...	...	182
„ 33 „ 3 „	...	...	...	99
„ 15 „ 4 „	...	...	...	60
„ 7 „ 5 „	...	...	...	35
„ 3 „ 6 „	...	...	...	18
„ 1 household—7 cases	...	...	...	7
„ 1 „ 9 „	...	...	...	9
<u>482</u>				<u>741</u>
Fresh cases in 5 Public Institutions (see Table, p. 24)			8	
Total	...	...	...	<u>749</u>

Of the infected houses—

In relation to
Households, &c.

39, or about 8 per cent., consisted of 1 room each.

124 „ 26 „ „	2 rooms „
100 „ 21 „ „	3 „ „
219 „ 45 „ „	4 „ „ (or more).
<u>482</u>	

Of the sick-rooms in the 482 different houses infected, no less than 192 are returned as being not at all isolated from the rest of the premises, the family either living in the sick-room or having direct access to it. In 198 of the houses no means to prevent infection were being taken. In 50 cases only was removal to Hospital agreed to and effected.

490 occupants of the houses in question were employed at shops, &c., or in occupations elsewhere, as shewn on page 26.

The following businesses were carried on on infected premises, whereby infection was liable to be communicated to customers:—

Character of Infected Premises, &c.	No. of		Remarks made at date of Inquiry.
	House-holds.	Cases.	
Public Houses and Beerhouse	5	7	In 1 case the family had access to sick-room ; and in 2 cases no precautions were being taken.
Provision Shops ...	4	10	
Grocer's Shop ...	1	1	
Greengrocer's ...	1	2	
Boot and Shoe Repairers	2	4	In 1 case the family were living in the sick-room, and no precaution was being taken.
Dressmaking ...	1	1	
Confectioner's Shop ...	1	1	In this case the family had access to sick-room.
Lodging House ...	1	1	No precaution was being taken.
Dentist ...	1	1	

Scarlet Fever in relation to School Attendance.

Scarlet Fever in relation to School Attendance.—Of the households infected with Scarlet Fever, 368 contained scholars of one or other of 123 different schools in the City. In three of the largest elementary schools scholars came from upwards of 20 of such households during the year, the largest number attending any one school being 29. The school principals were cautioned.

In two schools there was infection in the households of its scholars during ten months of the year, and in two others during nine months.

On six occasions from 5 to 12 families of the scholars of individual schools were infected during different months of the year, including one school so affected three times.

Rate of Scarlet Fever in Board Schools.—Through the courtesy of the Clerk to the School Board, Mr. A. Goddard, who has furnished the average daily attendances at each of the Board Schools of the City, the subjoined statement has been prepared, shewing the percentage of cases of Scarlet Fever to average number of scholars in each school:—

	Per Cent. of Cases of Scarlet Fever.				
Westmorland Road	1·1				
Arthur's Hill	0·7				
Saint Peter's	2·7				
Byker	3·0				
Bentinck	0·6				
Scotswood Road	0·8				
Royal Jubilee	1·2				
Victoria Jubilee	0·8				
Spital Tongues	1·3				
Diana Street	<i>nil</i>				
Grafton Street	2·0				

For special reports on *Outbreaks of Scarlet Fever in Dairy Customs*, see Appendices B and C.

Caution to Cowkeepers, &c.—Owing to the latter of these outbreaks, the Sanitary Committee ordered a printed bill of caution to be forwarded to every dairyman and milk dealer in or near Newcastle. The following is a copy:—

“CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

TO COWKEEPERS, DAIRYMEN, AND OTHERS.

CAUTION WITH RESPECT TO INFECTIOUS DISEASE.

“All Dairymen, Cowkeepers, and other persons engaged in the production, storage, or distribution of Milk on sale are hereby strongly Cautioned against allowing any ailment, such as Scarlet Fever, Sore Throat, Swelling of the Glands of the Neck or Throat, Peeling of the Skin, or any other Infectious Disease, to exist in their families or amongst persons engaged in the milk trade, without at once giving notice thereof to the Medical Officer of Health of their District.

“Attention is directed to the provisions of the ‘Cowsheds, Dairies, and Milk Shops Order, 1885,’ which renders all persons in the Milk Trade liable to a heavy penalty for knowingly allowing anyone suffering from such diseases as those above named, or having been in contact with persons so suffering, to milk cows, or handle milk vessels, or take part in a milk business.

“By Order of the Sanitary Committee,

T. B. WINTER,
CHAIRMAN.

“Town Hall, Newcastle-upon-Tyne,
25th July, 1888.”

Rate of Scarlet
Fever in Board
Schools.

Outbreak of
Scarlet Fever in
Dairy Customs.

Caution to
Cowkeepers, &c.

Scarlet Fever at a Dairy Farm at Kenton.—The following is an extract from the Report of the Medical Officer of Health for the fortnight ended 28th July :—

“In the evening of the 19th inst. Dr. Dalgliesh informed the Medical Officer of Health that he had that afternoon seen a patient suffering from Scarlet Fever at the farmhouse of Mr. E. Potts, Kenton. As this farm sends a large quantity of milk into Newcastle, the Medical Officer of Health at once went out to it with Dr. Dalgliesh and removed the patient to Newcastle Fever Hospital the same night. As the patient, a servant, had milked some of the cows whilst feeling unwell, it was recommended that next morning’s supply of milk should not be sold, but emptied into the liquid manure tank, and that no milk should be sold till further notice, all of which was agreed to, and, as the Medical Officer of Health was afterwards informed, was done. Next morning (20th) Mr. and Mrs. Potts met the Chairman of the Sanitary Committee and the Town Clerk and the Medical Officer of Health at the Town Clerk’s office. Other visits to the farm were made. The cows were examined by Mr. C. Stephenson, F.R.C.V.S., at the Medical Officer of Health’s request, and found to be all well with certain exceptions, which need not be specified at present, as they do not concern the matter under report.

“Arrangements were made for milking the cows and temporarily carrying on the dairy business at a distance of about 200 yards from the farmhouse. The milk supply to Newcastle was renewed on the 23rd inst.

“Scarlet Fever and Sore-throat have been prevalent in Kenton recently. The children of one of the non-resident milkers had the latter a few weeks ago. Since the servant was removed to hospital the child of another milker, also non-resident, has had a severe attack of Scarlet Fever; instructions were given to keep this milker and also her son, who is a hind, away from the farm buildings.

“Hitherto no consumer of Mr. Potts’s milk in the city has been notified as having Scarlet Fever.”

Claims of Dairymen for Compensation for Loss incurred by stoppage of the Sale of their Milk, &c.—The dairy-farmer, Mr. Potts, of Kenton, sent in a claim for £76 18s. 6d. compensation, including £61 2s. 6d. loss sustained through stoppage of sale of milk, and about 15 guineas expenses for alterations necessary for temporarily carrying on of business. The dairy herd consisted of 35 cows; the business was absolutely stopped for four days only, but owing to this many customers went elsewhere.

Mr. Dodgson, proprietor of the Gosforth dairy connected with the outbreak of Scarlet Fever reported in Appendix C, claimed £15 loss through total stoppage of his business during seven and a half days. His dairy herd consisted of 18 cows.

The Sanitary Committee made a Report to the City Council on the above claims in which, whilst expressing their approval of the action taken to stop the sale of the milk as being necessary in the interests of the public health, they recommended that in the case of the larger claim (that of Mr. Potts), the sum of £30 be paid, but that in the case of the claim of Mr. Dodgson no payment be made. This report was, after discussion, confirmed by a large majority of the Council.

Scarlet Fever in the family of a non-resident helper at a Dairy.—Rosa H——, No. —, Beaumont Street, was notified on July 25th as suffering from Scarlet Fever; her father assisted in a dairy at Blenheim Street. On the advice of the Medical Officer of Health he went to a lodging, to which his wearing apparel, &c., was sent after disinfection. The dairy proprietor was informed and cautioned. The special inspector of the district was instructed to keep the case under supervision to prevent the too early return of the dairy servant to his home. No infection of the milk occurred to our knowledge.

Scarlet Fever in
the family of a
non-resident
helper at a Dairy.

DIPHTHERIA.

The undermentioned details refer to Diphtheria during the year **Diphtheria.**
1888.

Fresh cases—

In 60 households, single cases ...	...	...	...	60
„ 7 „ 2 cases each...	...	...	...	14
„ 4 „ 3 „ „ „	...	...	...	12
„ 1 household 4 „	...	...	...	4
„ 1 „ 7 „	...	...	...	7
Total ...	...	...	...	<u>97</u>

Of the infected houses—

5, or about 7 per cent., consisted of 1 room each.

24 „ 33 „ „	2 rooms „
19 „ 26 „ „	3 „ „
25 „ 34 „ „	4 „ „ (or more).
<u>73</u>	

Of the sick rooms in the 73 different houses infected 28 are returned as being not at all isolated from the rest of the premises, the family either having access to, or living in, the sick room. In 27 of the houses no means to prevent infection were being taken. In one case removal to hospital was agreed to and effected.

70 occupants of the houses in question were employed at shops, &c., or in occupations elsewhere as shewn on Table at page 26.

The following businesses were carried on on infected premises whereby infection was liable to be communicated to customers :—

Character of Infected Premises, &c.	No. of		REMARKS.
	House-holds.	Cases.	
Public house	2	2	In 1 case the family had access to sick-room.
Painter and Glazier's ...	1	1	
Travelling Draper's ..	1	1	
Boot and Shoe Repairer's	1	1	

Milk Supply.—The households affected were supplied by a large number of dealers, and there is no reason to suppose that any outbreak was attributable to milk. Five dairies only supplied milk to more than one infected household, viz.:—

1 dairy supplied	...	...	...	3 households.
4 dairies „	...	...	...	2 „ each.

PUERPERAL FEVER.

Puerperal Fever.

The undermentioned details refer to Puerperal Fever during the year 1888.

Inquiries were made in 5 households containing 5 cases.

All the above cases were attended by different medical men :—

Infectious Diseases in Public Institutions.

INFECTIOUS CASES NOTIFIED IN PUBLIC INSTITUTIONS.

Institution.	Enteric Fever.	Scarlet Fever.	Diphtheria.	Continued Fever.	TOTAL.
Infirmary	4	4	...	1	9
Workhouse	1	1	...	...	2
Nurses' Home, Ellison Place	1	...	...	...	1
Eye Infirmary ... ... ...	...	1	...	...	1
Deaf and Dumb Institution ... ... ...	...	1	...	...	1
Total	6	7	...	1	14

ISOLATION AND OTHER PREVENTIVE MEASURES ADOPTED.

Isolation and
other Preventive
Measures in
Infected
Households.

The inquiry into this has been continued during the year with the following results :—

SUMMARY.—CHARACTER OF INFECTED HOUSES.

DISEASE.	DWELLINGS INVADED BY DISEASE.					Total House-holds.	
	HOUSEHOLDS.			Houses of more than 3 rooms.			
	1 room each.	2 rooms each.	3 rooms each.				
Small-pox ... ...	... ...	... 1	... 2	... 1	... ...	... 4
Typhus ... ...	... ...	14	40	20	20	94
Enteric Fever ... ...	... ...	2	8	...	3	13
Continued Fever ... ...	... ...	39	124	100	219	482
Scarlet Fever ... ...	... ...	5	24	19	25	73
Totals	61	198	140	267	666		
Rate per cent. to Total ...	9 %	30 %	21 %	40 %	...		

Summary of Occupations followed elsewhere by Residents on Infected Premises.

SUMMARY OF OCCUPATIONS IN WHICH PERSONS RESIDING ON INFECTED PREMISES WERE ENGAGED ELSEWHERE AT THE TIME OF INQUIRY.

Occupations (after the Classification in the Census Tables).	Small-pox.	Typhus.	Enteric Fever.	Simple Continued Fever.	Scarlet Fever.	Diphtheria	Puerperal Fever.	TOTALS.
Government of the Country (Postal Officials, Police, &c.)	4	...	13	...	...	17
Professional Classes, viz.:—								
Schoolmasters and Teachers	1	4	...	...	5
Medical, &c.	2	1	3	...	...	6
Law	4	1	...	5
Others	1	...	5	1	1	7
Domestic Service	3	...	6	1	...	10
Commercial Occupations (Travelers, Clerks, Agents, &c.)	8	...	56	6	1	71
Conveyers of Men, Goods, or Messages	11	1	36	5	...	53
Occupations about Animals	1	...	4	...	...	5
Workers and Dealers in Books, Prints, &c.	3	...	20	...	...	23
Workers and Dealers in Machines and Implements	14	1	42	10	...	67
Workers and Dealers in Houses, Furniture, and Decorations	2	10	2	40	5	...	59
Workers and Dealers in Carriages and Harness	1	...	...	1
Persons employed in Shipyards	7	3	20	6	...	36
Workers and Dealers in Chemicals or Compounds	2	2	...	4
Workers and Dealers in Tobacco	1	...	...	1
Workers and Dealers in Food and Lodging (Publicans, Butchers, Provision Dealers, &c.)	13	1	39	1	1	55
Workers and Dealers in Textile Fabrics (Drapers, &c.)	1	1	11	1	...	14
Workers and Dealers in Dress	5	...	19	2	...	26
Do. in Animal Substances (not Food, &c.)	1	...	...	4	...	...	5
Workers and Dealers in Vegetable Substances (not Food)	1	...	...	1
Workers and Dealers in Mineral Substances (Miners, Blacksmiths, &c.)	3	1	29	9	...	42
Workers and Dealers in Unspecified Commodities, viz.:—								
Labourers	6	...	33	9	...	48
Pawnbrokers	1	...	...	1
Enginemen and Firemen (undefined)	7	2	...	9
Lamplighter	1	...	...	...	1
Hawkers	2	2	...	2	1	...	7
Errand Boys and Girls	1	2	...	...	3
Managers, Foremen, &c.	2	...	6	1	...	9
Gardeners	1	...	4	...	...	5
Workers and Dealers in Refuse Matters (Sweeps and Rag Dealers)	1	...	3	...	...	4
Without Specific Occupation	1	...	...	1
Occupation not stated	4	2	71	8	2	87
Totals	5	102	16	490	70	5	688
Totals of Inquiries Made during the year at Infected Households	4	94	13	482	73	5	671

Character of the Isolation and other Preventive Measures adopted.—The following Table shews the character of the isolation observed and the extent to which other preventive measures were used by those on whose households infectious sickness was reported during the year :—

Character of the
Isolation and
other Preventive
Measures
adopted.

SUMMARY.—ISOLATION OF SICK-ROOMS AND PRECAUTIONS TAKEN, &c.

DISEASE.	Total House-holds Infected	ISOLATIONS.				No Pre-cautions being taken at time of Inspection.	Removal to Hospital agreed to. (Number of Patients.)	Percentage of Cases Isolated in Hospital to Total Notified.
		Well.	Moder-ate.	Imper-fect.	None.			
Small-pox ...	...	...	...	...	...	...	...	...
Typhus ...	4	...	...	1	3	3	2	50
Enteric Fever...	94	1	3	41	49	44	21	17·2
Continued Fever	13	...	...	4	9	6	...	...
Scarlet Fever...	482	14	92	184	192	198	50	6·7
Diphtheria ...	73	3	8	34	28	27	1	1
Total ...	666	18	103	264	281	278	74	...
Percentage ...	...	2·7 %	15·4 %	39·9 %	42 %	42 %	...	7·4

CORRESPONDING RETURN FOR THE YEAR 1887.

Total (1887) ...	1,091	23	117	395	556	569	176	...
Percentage ...	...	2 %	11 %	36 %	51 %	52 %	...	10·0

FEVER HOSPITALS.

Work at the
Hospitals for In-
fectious Diseases.

82 patients have been admitted to the Fever Hospital, Bath Lane, and City Hospital for Infectious Diseases at Walker :—

2	suffering from Typhus.
21	„ Enteric Fever.
50	„ Scarlet Fever.
1	„ Diphtheria.
2	„ Febricula.
6	„ Other diseases.

For other details as to the above, see Appendix A, Table XI.

Owing to the absence of Small-pox it has not been necessary to open the Small-pox Hospital or Small-pox Convalescent Home during the past year.

Expense of Maintenance.

Expense of
Maintenance of
Patients.

Of the patients admitted, the expense of maintenance is charged as under :—

						Cases.
To the Sanitary Authority	...	...	...	...	...	65
,, private guarantors	...	...	...	...	...	17
						—
Total	...	...	...	...	...	82
						—

BURIAL OF CORPSES.

Burial of
Corpses under
Local Act.

Under the 47th Section of the "Newcastle-upon-Tyne Improvement Act, 1882," Orders of Justice have been obtained during the past year as follow :—

For Burial of Corpses from rooms in which persons live or sleep	...	...	9
" " Fever Hospital	...	...	1
For Removal of Corpses from Infirmary	...	...	8
			—
Total	...	...	18
			—

SUMMARY OF REPORTS MADE DURING 1888.

Summary of
Reports, &c.,
made during
the year.

The following among other matters have been brought before the Sanitary Committee during the year :—

1.—ZYMOTIC DISEASE—

Special Reports—

Outbreaks of Scarlet Fever in Dairy Customs (see page 22 and Appendices B and C).

The City Hospital for Infectious Diseases (Appendix D).

Diphtheria in an insanitary house.

Typhus and compulsory removal to Hospital.

Scarlet Fever patient removed into the country in a public conveyance.

The provision of a Refuge House for the occupants of tenement dwellings during disinfection of their rooms after fever, &c.

Fortnightly Returns of Notified Disease, Hospital Admissions, Deaths, cases illustrating liability to spread of infection.

Occupation of Hospitals.

Intercommunication between Sanitary Authorities of large towns as to infectious disease.

Compensation granted for milk, confectionery, &c., destroyed on account of infection.

2.—LOCALITIES—

Matthew Bank (tripery).
 North end of the City (offensive smells).
 Pitman's Row, Forth Banks.
 Tuthill Stairs.
 Stanton Street.
 Victoria Jubilee Board Schools, Byker.
 Cattle Market Slaughter-houses.
 Proposed Cow-houses, &c.

3.—GENERAL—

Tenement Regulation and Bye-laws.
 List of unpaved streets, courts, and open areas.*
 Sanitary subjects for proposed Newcastle Improvement Bill
 (Appendix E).
 Transport of Sheep from the Continent.
 Expenditure, &c., &c.

GENERAL WORK OF THE HEALTH DEPARTMENT.

(a.)—*Nuisance Removal*.—3,756 cases of nuisance have been attended to by the Inspectors of the Department during the year. (For details see Appendix A, Table XVI.)

(b.)—*The Bakehouses* (67) are reported by the Chief Inspector of Nuisances to be systematically inspected every six months, and at other times. Six old ones have been discontinued and closed during the year. Five new ones have been registered in outlying parts of the City.

(c.)—*The Triperies* (10), Marine stores (33), also the different Soap works, Candle works, Tanneries, &c., are reported by Mr. Clarke to be regularly attended to as to cleansing.

General Work of
the Health
Department.

Nuisance
Removal.

Bakehouses.

Triperies, &c.

* The totals of unpaved streets within the City, back or front, or both, in whole or part, in January, were stated in the Report to be as under :—

District.	Unpaved Streets.			Condition bad or very bad.	
1	23	...	6
2	30	...	23
3	17	...	12
4	6	...	8
Total	...	130		...	49

The unpaved yards and open spaces were stated to be as follows :—

District.	No. of Areas Unpaved.		
1	4
2	8
3	6
4	17
City	...	35	

Disease Inquiry.

(d.)—*Infectious Disease Inquiry and Disinfection.*—994 cases of infectious disease have been inquired into by the Special Inspectors, and the houses or rooms connected therewith disinfected, as compared with 1,763 during the year before. The bedding and other infected articles have been removed to the Disinfecting Station, and after purification they have been returned to the owners. (For list see Appendix A, Tables XIV. and XV.)

Compensation.

(e.)—*Compensation granted on account of Infection.*—In one case only compensation has been allowed by the Sanitary Committee to the occupier of an infected house for confectionery destroyed.*

Food Inspection.

(f.)—*Food Inspection.*—The report of Inspector Hedley on suspected and unwholesome *Butchers' Meat* or other flesh examined during the year, is given in Appendix A, Table XII. A Table of Fish inspected at the Fish Market in the Close is given in Appendix A, Table XIII. The amount of fish delivered at the Close Market, both by boat and rail, is less than in the previous year.

Dairies, &c.

(g.)—*Inspection of Dairies, Cow-sheds, and Milk-shops during 1888.*—Inspector Hedley reports that—

“During the year 1,380 inspections of dairies and cow-sheds have been made. No formal notices have been served on occupiers, but several small improvements have been made on verbal complaint and notice.

“One new building has been occupied as a cow-shed, a plan having been submitted to and passed by the Town Improvement Committee. One application to begin to occupy an old building as a cow-shed was granted, after being reported on and being inspected by the Committee.

“One cow-shed has been pulled down. 13 others were either unoccupied or used for other purposes at the close of the year.

“The quantity of milk brought into the City by rail is increasing year after year.

“New regulations, for the better control of cow-sheds as to overcrowding of cattle therein and general sanitary arrangements, are much required.

“One outbreak of infectious disease, viz., Scarlet Fever, has been reported in the family of a dairyman. The case was at once isolated, and no milk intended for sale was allowed to go to the infected premises. So far as is known no spread of infection occurred.”

(h.)—*Slaughter-houses.*—Inspector Hedley reports that—

“The general inspection of slaughter-houses has been closely attended to throughout the year. The principal places in the central parts of the City being visited two and three times each week, and others, in more outlying parts, as often as time permits.

“The three principal groups at Stepney, Dispensary Lane,

* For compensation for milk destroyed on account of infection, see page 22.

and Cattle Market, are now in fair condition as regards drainage, water supply, material of floors, and general cleanliness. The drainage of those at the Cattle Market has been disconnected and brought outside, so that the liquid discharges over properly trapped drain-inlets in the open air—a great improvement.

"Several other slaughter-houses have been improved by relaying floors, trapping drains, &c., but the great evils of many are their proximity to dwelling-houses, confined situations, and general structural defects, of which no improvement is practicable.

"Plans have been submitted to and passed by the Town Improvement Committee to build 3 new slaughter-houses, 2 of which have been built and are now occupied.

"In October the Council agreed to licence 130 places as slaughter-houses ; of that number 36 were licensed for six months only on account of their unsatisfactory condition."

HOUSES BUILT DURING THE YEAR 1888.

The following return of houses built during the year under report is supplied through the courtesy of the City Engineer :—

House-building
in 1888.

Newcastle-upon-Tyne.	Houses.			Houses of	
	Self-contained.		Two Flats each.		
Elswick Township	98	...	187
Westgate Township	14	...	52
Byker Township	—	...	144
Jesmond Township	45	...	—
Heaton Township	228	...	25
St. Andrew's Parish	24	...	3
St. John's Parish	—	...	—
St. Nicholas' Parish	—	...	—
All Saints' Parish	3	...	50
			412	461	
					(for 922 families.)

New accommodation has thus been provided for 1,334 families, or, at the rate of 5 persons to a family, 6,670 persons, as compared with accommodation estimated for 5,570 persons provided during 1887.

New Accommo-
dation.

Plans submitted to the Town Improvement Committee * for 817 new dwellings (266 self-contained houses, and 1,102 flats), together with 140 additions and 93 alterations to existing buildings, have been examined by the Medical Officer of Health.

Plans Examined.

The conveniences proposed for these dwellings were as under :—

Conveniences.

WATER-CLOSETS.		ASH-CLOSETS.	PRIVIES.	FOWLER'S OR DUCKETT'S CLOSETS.
Indoor.	Outdoor.			
145	1,029	153	1	120

* Several of these were rejected by the Committee, and others, for various reasons, have not been carried out.

**Defects on Plans
for proposed
Houses.**

The following is a summary of the principal defects observed on the plans as first submitted :—

Small Bedrooms.

1,111 *small bedrooms* were noted. Twenty of the smallest of these yield an average capacity of 574 cubic feet. Of twenty of such bedrooms, the plans for which were examined on the same day, the average capacity was 743 cubic feet, and the average floor space 79·1 square feet.

**Other Defects on
Plans.**

217 other rooms (kitchens, &c.), were notified as "small."

464 bedrooms were without fireplace or special means of ventilation.

94 water-closets were in an improper position.

120 yards were deficient in space.

17 stables and 1 slaughter-house were objectionably near to dwellings.

11 proposed buildings interfered injuriously with light or ventilation of adjoining buildings.

3 instances of insufficient "convenience."

24 "well" rooms.

4 soil pipes not carried outside.

3 manure pits near dwellings.

7 improper drainage.

32 sculleries between living rooms and bedrooms.

5 instances where proposed chimney would be likely to cause smoke nuisance.

16 instances where attics were reduced in size to comply with byelaws.

1 improper position of urinal.

SANITARY ALTERATIONS.

With the authority of the Town Improvement Committee a number of minor structural works for sanitary purposes have been executed by owners of house property, on the approval of the City Engineer and the Medical Officer of Health. Thirty-two plans for work of this kind, sanctioned by the officers referred to, have been carried out.

HENRY E. ARMSTRONG,

MEDICAL OFFICER OF HEALTH.

Health Department,

Town Hall,

Newcastle-upon-Tyne,

March, 1889.

City and County of Newcastle-upon-Tyne, 1888.

APPENDIX A.

TABLE I.

POPULATION (ESTIMATED BY THE REGISTRAR GENERAL TO THE MIDDLE OF
THE YEAR)—159,003.

Registration Sub-districts and City.	Different Quarters of the Year.	Births Registered in 52 Weeks, ended 29th December, 1888.					Deaths Registered in 52 Weeks ended 29th Dec., 1888		
		Male.		Female.		Total.	Male.	Female.	Total.
		Legiti- mate.	Illegiti- mate.	Legiti- mate.	Illegiti- mate.				
Westgate ...	1st Quarter .	289	14	299	16	618	187	177	364
	2nd	318	12	325	9	664	193	157	350
	3rd	293	12	299	10	614	147	170	317
	4th	293	11	308	13	625	199	195	394
	Total ...	1,193	49	1,231	48	2,521	726	699	1,425
St. Andrew's	1st Quarter .	72	2	59	2	135	43	44	87
	2nd	81	4	69	4	158	52	38	90
	3rd	73	4	51	4	132	43	39	82
	4th	56	2	72	5	135	43	46	89
	Total ...	282	12	251	15	560	181	167	348
St. Nicholas'	1st Quarter .	26	4	32	2	64	55	39	94
	2nd	28	1	33	1	63	56	29	85
	3rd	30	2	35	1	68	48	37	85
	4th	29	1	18	1	49	55	34	89
	Total ...	113	8	118	5	244	214	139	353
All Saints' ...	1st Quarter .	107	7	115	7	236	66	66	132
	2nd	96	9	109	5	219	41	44	85
	3rd	127	5	111	2	245	57	42	99
	4th	115	10	117	8	250	71	59	130
	Total ...	445	31	452	22	950	235	211	446
Byker ...	1st Quarter .	212	10	210	9	441	112	83	195
	2nd	230	9	219	3	461	87	77	164
	3rd	198	4	210	8	420	67	64	131
	4th	204	6	200	4	414	102	97	199
	Total ...	844	29	839	24	1,736	368	321	689
City ...	1st Quarter .	706	37	715	36	1,494	463	409	872
	2nd	753	35	755	22	1,565	429	345	774
	3rd	721	27	706	25	1,479	362	352	714
	4th	697	30	715	31	1,473	470	431	901
	Totals ...	2,877	129	2,891	114	6,011	1,724	1,537	3,261

The Births represent a rate of 37.8, and the Deaths a rate of 20.5 per 1,000 estimated population. The increase of births over deaths is 2,750 this year, as compared with 2,170 in 1887. The increase of population at Midsummer, 1888, over that at Midsummer, 1887, is estimated by the Registrar General at 1,955 persons.

TABLE II.

RETURN OF CAUSES OF DEATH IN THE REGISTRATION SUB-DISTRICTS AND ENTIRE CITY DURING THE 52 WEEKS ENDED 29TH DECEMBER, 1888.

CAUSE OF DEATH.	REGISTRATION SUB-DISTRICTS AND CITY.					
	West-gate.	St. Andrew's.	* St. Nicholas'.	All Saints'.	Byker.	City.
I.—SPECIFIC, FEBRILE, OR ZYMOTIC DISEASES.						
<i>1.—Miasmatic Diseases.</i>						
Measles	8	...	...	1	1	10
Scarlet Fever (Scarlatina)	6	2	1	5	10	24
Diphtheria	15	1	...	3	14	33
Whooping-Cough	29	7	3	7	18	64
Typhus Fever ... ...	...	...	...	1	...	1
Enteric or Typhoid Fever ...	10	4	5	1	3	23
Simple Continued and Ill-defined Fever	1	2	1	...	...	4
Other Miasmatic Diseases ...	...	...	1	...	1	2
<i>2.—Diarrhoeal Diseases.</i>						
Diarrhoea, Dysentery	32	10	2	12	10	66
<i>5.—Venereal Diseases.</i>						
Syphilis	10	1	2	1	3	17
<i>6.—Septic Diseases.</i>						
Erysipelas	4	...	...	...	1	5
Pyæmia, Septicæmia	3	...	4	1	...	8
Puerperal Fever	1	1	...	...	1	3
II.—PARASITIC DISEASES.						
Thrush	1	...	...	...	...	1
III.—DIETIC DISEASES.						
Starvation & Want of Breast Milk	4	3	...	...	...	7
Chronic Alcoholism, Delirium Tremens	3	4	1	1	1	10
IV.—CONSTITUTIONAL DISEASES.						
Rheumatic Fever and Rheumatism of the Heart	1	1	...	...	2	4
Rheumatism	6	1	...	2	3	12
Rickets	1	...	...	...	...	1
Cancer, Malignant Disease ...	44	20	18	12	21	115
Tabes Mesenterica	15	...	1	7	12	35
Tubercular Meningitis, Hydrocephalus	24	6	4	12	13	59
Phthisis	170	41	24	41	72	348
Other Tubercular and Scrofulous Diseases	23	5	3	4	7	42
Carried forward	411	109	70	111	193	894

TABLE II.—CONTINUED.

RETURN OF CAUSES OF DEATH IN THE REGISTRATION SUB-DISTRICTS AND ENTIRE CITY DURING THE 52 WEEKS ENDED 29TH DECEMBER, 1888.

CAUSE OF DEATH.	REGISTRATION SUB-DISTRICTS AND CITY.					
	West-gate.	St. Andrew's.	St. Nicholas'.	All Saints'.	Byker.	City.
Brought forward	411	109	70	111	193	894
IV.—CONSTITUTIONAL DISEASES						
— <i>Continued.</i>						
Purpura, Hæmorrhagic Diathesis	...	...	...	1	...	1
Anæmia, Chlorosis, Leucocythaemia	3	...	2	4	...	9
Glycosuria, Diabetes Mellitus ...	2	2	5	...	4	13
V.—DEVELOPMENTAL DISEASES.						
Premature Birth	53	7	5	5	16	86
Atelectasis ... ...	...	...	...	1	...	1
Congenital Malformations ...	4	...	...	...	1	5
Old Age	115	16	9	14	25	179
VI.—LOCAL DISEASES.						
1.—Diseases of Nervous System.						
Inflammation of Brain or Mem-branes	25	9	4	15	20	73
Apoplexy, Softening of Brain, Hemiplegia, Brain Paralysis ...	99	21	16	18	38	192
Insanity, General Paralysis of the Insane	2	1	...	...	...	3
Epilepsy	8	2	1	2	...	13
Convulsions	69	17	11	25	32	154
Laryngismus Stredulus (Spasm of Glottis)	1	...	...	...	...	1
Paralysis Agitans, Paraplegia, Disease of Spinal Cord ...	2	1	1	...	...	4
Other Diseases of Nervous System	2	...	...	2	4	8
2.—Diseases of Organs of Special Sense.						
(e.g., Ear, Eyes, and Nose) ...	1	...	1	...	...	2
3.—Diseases of Circulatory System.						
Endocarditis, Valvular Diseases of Heart	5	5	5	4	1	20
Pericarditis ... ...	...	...	...	...	1	1
Other Diseases of Heart	89	17	21	26	39	192
Aneurism	1	1	4	...	1	7
Embolism, Thrombosis	2	1	...	...	...	3
Other Diseases of Blood Vessels ...	2	...	2	...	...	4
4.—Diseases of Respiratory System.						
Croup	14	2	5	2	8	31
Laryngitis	3	...	2	6	4	15
Bronchitis	123	27	19	45	44	258
Pneumonia	65	18	19	25	45	172
Pleurisy	9	3	...	1	2	15
Emphysema, Asthma	8	1	...	2	3	14
Other Diseases of Respiratory System	19	8	4	2	3	36
Carried forward	1,137	268	206	311	484	2,406

TABLE II.—CONTINUED.

RETURN OF CAUSES OF DEATH IN THE REGISTRATION SUB-DISTRICTS AND ENTIRE CITY DURING THE 52 WEEKS ENDED 29TH DECEMBER, 1888.

CAUSE OF DEATH.	REGISTRATION SUB-DISTRICTS AND CITY.					
	West-gate.	St. Andrew's.	St. Nicholas'.	All Saints'.	Byker.	City.
Brought forward	1,137	268	206	311	484	2,406
5.—Diseases of Digestive System.						
Dentition	14	1	...	...	12	27
Tonsillitis, etc. ... ...	...	...	...	...	1	1
Diseases of Stomach	9	3	...	8	7	27
Enteritis	15	2	...	7	10	34
Peritonitis	15	...	4	3	4	26
Obstructive Diseases of Intestine	7	2	2	3	3	17
Ascites ... ... ...	...	...	...	2	...	2
Cirrhosis of Liver	11	4	6	3	2	26
Jaundice & other Diseases of Liver	9	1	5	3	5	23
Other Diseases of Digestive System	3	1	...	...	...	4
8.—Diseases of Urinary System.						
Nephritis	5	3	...	...	3	11
Bright's Disease, Albuminuria ...	16	6	7	6	4	39
Disease of Bladder and of Prostate	3	...	5	...	2	10
Other Diseases of Urinary System	2	1	7	...	3	13
9.—Diseases of Re-Productive System.						
(A) Of Organs of Generation.						
Female Organs ... ... ...	...	...	1	...	...	1
(B) Of Parturition.						
Puerperal Convulsions ... ...	...	...	...	...	1	1
Placenta Prævia, Flooding ...	...	...	...	...	1	1
Other Accidents of Childbirth ...	6	1	1	...	1	9
10.—Diseases of Locomotive System						
Caries, Necrosis ... ... ...	...	...	1	1	1	3
Arthritis, Ostitis, Periostitis ...	2	...	...	...	...	2
Other Diseases of Locomotive System	3	3	1	2	2	11
11.—Diseases of Integumentary System.						
(e.g., Carbuncle, Phlegmon, Cellulitis)	2	...	1	...	...	3
VII.—VIOLENCE.						
1.—Accident, Negligence, etc.						
Fracture and Contusion	12	...	39	1	6	58
Gunshot Wound ... ...	...	...	1	...	...	1
Burn and Scald	3	1	8	3	1	16
Poison	1	...	2	1	...	4
Drowning	2	1	1	1	3	8
Suffocation	4	3	...	6	6	19
Hernia ... ...	...	...	6	...	...	6
Deaths consequent on Surgical Operation ... ...	...	...	1	...	...	1
Otherwise	3	1	...	...	...	4
Carried forward	1,284	302	305	361	562	2,814

TABLE II.—CONTINUED.

RETURN OF CAUSES OF DEATH IN THE REGISTRATION SUB-DISTRICTS AND ENTIRE CITY DURING THE 52 WEEKS ENDED 29TH DECEMBER, 1888.

CAUSE OF DEATH.	REGISTRATION SUB-DISTRICTS.					
	West-gate.	St. Andrew's.	St. Nicholas'.	All Saints'.	Byker.	City.
Brought forward	1,284	302	305	361	562	2,814
<i>2.—Homicide.</i>						
Murder and Manslaughter ...	1	...	1	...	...	2
<i>3.—Suicide.</i>						
Cut, Stab	1	...	1	...	2	4
Poison ... ... ...	...	2	...	...	1	3
Drowning	2	1	...	...	1	4
Hanging	1	1	...	4	2	8
Otherwise ... ... ...	...	...	1	...	1	2
VIII.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES.						
Dropsy	1	1	1	1	1	5
Debility, Atrophy, Inanition ...	95	17	17	45	80	254
Mortification	3	1	1	2	...	7
Tumour	5	5	4	3	3	20
Abscess ... ... ...	...	1	5	...	2	8
Haemorrhage	2	...	...	...	3	5
Found Dead (Cause not stated) ...	5	...	3	4	7	19
Other Causes not specified or ill-defined	25	17	14	26	24	106
TOTALS	1,425	348	353	446	689	3,261

* The number of Deaths in St. Nicholas' Sub-district is increased by 194 in the Infirmary, and 4 in the Fever Hospital, 80 of the former came to that Institution from beyond the City. In 8 other cases residences were unknown.

TABLE III.

ANNUAL DEATH-RATE PER 1,000 LIVING IN NEWCASTLE FOR EACH OF THE PAST TWO YEARS, COMPARED WITH THE AVERAGE RATE IN THE LARGE TOWNS OF THE UNITED KINGDOM.

	1887.		1888.	
	Annual Average in 28 Towns.	Annual Rate in New-castle.	Annual Average in 28 Towns	Annual Rate in New-castle.
1st Quarter	22·0	25·6	22·1	21·9
2nd „	19·8	24·3	18·1	19·5
3rd „	20·4	24·8	16·9	18·0
4th „	21·1	26·0	19·8	22·7
Annual Rate	20·8	25·2	19·2	20·5

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.—1888.

SUMMARY OF TABLE III.
SHOWING ALSO THE INCIDENCE OF MORTALITY FROM THE DIFFERENT ORDERS OF DISEASE, ETC., IN THE RESPECTIVE QUARTERS OF THE YEAR.

CAUSE OF DEATH.	CITY.	REGISTRATION SUB-DISTRICTS.													
		WESTGATE			ST. ANDREW'S.			ST. NICHOLAS'.			ALL SAINTS'.			BYKER.	
1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.
I.—SPECIFIC, FEBRILE, OR ZYMOTIC DISEASES—															
1. Miasmatic Diseases	... 38	40	47	161	14	19	17	69	5	3	4	4	3	11	47
2. Diarrhoeal Diseases	... 2	6	32	66	2	3	13	14	32	... 1	6	4	10	2	9
5. Venereal Diseases	... 4	3	3	17	2	1	5	2	10	... 1	1	1	10	2	4
6. Septic Diseases	... 5	7	1	3	16	3	3	2	8	... 1	1	1	1	1	3
II.—PARASITIC DISEASES	... 1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
III.—DIETIC DISEASES	... 8	2	3	4	17	3	3	1	7	3	1	1	1	1	1
IV.—CONSTITUTIONAL DISEASES	... 166	157	159	157	639	71	68	72	78	289	24	21	16	17	10
V.—DEVELOPMENTAL DISEASES	... 70	70	60	71	271	44	45	38	45	172	4	8	6	5	57
VI.—LOCAL DISEASES—															
1. Diseases of Nervous System	133	97	94	124	448	65	50	38	55	208	14	11	16	10	51
2. Diseases of Organs of Special Sense	... 1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3. Diseases of Circulatory System	71	61	46	49	227	29	25	23	22	99	4	12	4	13	9
4. Diseases of Respiratory System	145	137	81	178	541	61	68	35	77	241	15	10	11	13	42
5. Diseases of Digestive System	40	39	55	53	187	18	20	25	20	83	2	5	4	3	109
8. Diseases of Urinary System	14	21	19	19	73	4	7	8	7	26	3	1	4	1	14
9. Diseases of Reproductive System	... 1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
(A) Of Organs of Generation	... 4	2	1	4	11	3	1	2	6	... 1	1	1	1	1	1
(B) Of Parturition	... 3	5	5	16	... 2	1	1	1	3	5	1	1	1	1	3
10. Diseases of Locomotive System	... 1	1	1	1	3	... 1	1	2	1	2	1	1	1	1	3
11. Diseases of Integumentary System	... 1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
VII.—VIOLENCE—															
1. Accident, Negligence, etc.	33	28	33	117	5	7	6	7	25	1	1	3	1	15	16
2. Homicide	... 1	6	8	6	21	1	1	2	1	1	1	2	1	1	4
3. Suicide	... 1	6	8	6	21	1	1	2	1	4	1	2	1	3	7
VIII.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES ...	134	95	84	111	424	38	31	29	38	136	12	13	5	12	42
TOTAL ...	872	774	714	901	3261	364	350	317	394	1425	87	90	82	89	348
											94	85	85	89	353
											132	85	85	89	353
											131	131	131	131	689

TABLE IV.

THE FOLLOWING TABLE SHEWS THE WEEKLY NUMBERS OF DEATHS FROM CERTAIN DISEASES, LIABLE TO FLUCTUATION, DURING THE 52 WEEKS ENDED 29TH DECEMBER, 1888:—

1888. WEEK ENDED.	Pulmonary Consumption.	Diseases of Respiratory Organs other than Consumption.	SEVEN CHIEF ZYMOtic DISEASES.								Total of Seven Chief Zymotic Diseases.
			Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping-Cough.	Fever.	Typhus.	Enteric.	
Jan. 7 ...	8	10									4
," 14 ...	5	12									6
," 21 ...	3	20									6
," 28 ...	7	9									2
Feb. 4 ...	12	8									2
," 11 ...	4	14									6
," 18 ...	9	9									4
," 25 ...	3	11									1
Mar. 3 ...	9	11									2
," 10 ...	3	6									3
," 17 ...	3	10									1
," 24 ...	14	10									3
," 31 ...	11	15									4
April 7 ...	3	11									1
," 14 ...	6	11									5
," 21 ...	12	11									6
," 28 ...	4	10									3
May 5 ...	10	13									2
," 12 ...	9	9									3
," 19 ...	5	12									4
," 26 ...	5	14									3
June 2 ...	4	11									2
," 9 ...	6	9									4
," 16 ...	14	13									2
," 23 ...	8	10									5
," 30 ...	4	3									2
July 7 ...	5	10									5
," 14 ...	5	8									3
," 21 ...	8	3									6
," 28 ...	9	2									8
Aug. 4 ...	4	3									3
," 11 ...	5	7									3
," 18 ...	5	7									3
," 25 ...	3	3									8
Sept. 1 ...	6	11									5
," 8 ...	9	7									7
," 15 ...	6	11									6
," 22 ...	9	4									4
," 29 ...	6	5									7
Oct. 6 ...	6	10									11
," 13 ...	2	17									10
," 20 ...	10	15									3
," 27 ...	10	17									4
Nov. 3 ...	6	18									16
," 10 ...	12	12									8
," 17 ...	7	16									2
," 24 ...	5	14									7
Dec. 1 ...	6	15									2
," 8 ...	4	17									5
," 15 ...	11	9									2
," 22 ...	3	9									2
," 29 ...	5	9									6
Totals ...	348	541	...	10	24	33	64	123	4	66	225

TABLE V.—AGES AT DEATH.

Periods.	REGISTRATION SUB-DISTRICTS.					Total in City.
	Westgate.	St. Andrew's.	St. Nicholas'.	All Saints'.	Byker.	
Under 1 Year	359	73	43	138	214	827
1 Year and under 5 Years..	156	41	30	58	119	404
5 Years „ 20 „ ...	88	19	29	29	44	209
20 „ „ 40 „ ...	198	54	90	60	84	486
40 „ „ 60 „ ...	266	76	98	81	96	617
60 „ „ 80 „ ...	306	72	61	72	118	629
80 „ and upwards ...	52	13	2	8	13	88
Age not known ... .	...	...	...	...	1	1
Total (all ages) dying during 52 weeks ended 29th Dec., 1888 ... }	1,425	348	353	446	689	3,261

TABLE VI.
BIRTHS AND DEATHS IN THE DIFFERENT QUARTERS OF THE YEARS 1887, 1888.

	BIRTHS.		DEATHS.	
	1887.	1888.	1887.	1888.
First Quarter	1,484	1,494	1,007	872
Second „ „ „	1,507	1,565	953	774
Third „ „ „	1,559	1,479	973	714
Fourth „ „ „	1,573	1,473	1,020	901
Totals	6,123	6,011	3,953	3,261

TABLE VII.
DEATHS OF CHILDREN UNDER 1 YEAR AND PERSONS OVER 60 YEARS IN 1885, 1886, 1887, 1888.

	NUMBER OF DEATHS.							
	Under 1 Year of Age.				Over 60 Years.			
	1885.	1886.	1887.	1888.	1885.	1886.	1887.	1888.
First Quarter	228	215	252	216	178	191	194	207
Second „ „ „	301	206	220	194	179	140	184	181
Third „ „ „	277	299	313	174	152	123	161	148
Fourth „ „ „	201	231	281	243	156	186	215	181
Totals	1,007	951	1,066	827	665	640	754	717

TABLE VIII.

DEATHS OF CHILDREN UNDER ONE YEAR OF AGE DURING THE 52 WEEKS
ENDED DECEMBER 29TH, 1888.

CAUSE OF DEATH.	REGISTRATION SUB-DISTRICTS AND CITY.					Total in City.	
	West- gate.	St. Andrew's.	St. Nicholas'.	All Saints'.	Byker.		
I.—SPECIFIC, FEBRILE, OR ZYMATIC DISEASES.							
1.— <i>Miasmatic Diseases.</i>							
Measles	3	...	...	...	1	4
Scarlet Fever (Scarlatina) ... ...	...	...	...	1	...	1
Diphtheria	1	...	...	...	1	2
Whooping-Cough	10	2	1	3	9	25	
2.— <i>Diarrhœal Diseases.</i>							
Diarrhœa, Dysentery	14	2	...	8	8	32	
5.— <i>Venereal Diseases.</i>							
Syphilis	10	...	1	1	2	14	
6.— <i>Septic Diseases.</i>							
Erysipelas	2	...	...	...	...	2
II.—PARASITIC DISEASES.							
Thrush	1	...	...	...	...	1
III.—DIETIC DISEASES.							
Starvation and Want of Breast Milk	4	3	...	...	...	7
IV.—CONSTITUTIONAL DISEASES.							
Rheumatism	1	...	...	...	...	1
Tabes Mesenterica	9	...	1	4	4	18	
Tubercular Meningitis, Hydrocephalus	3	2	1	6	3	15	
Phthisis ... ... ...	...	...	...	1	1	2
Other Tubercular and Scrofulous Diseases	4	1	...	2	3	10	
Anæmia, Chlorosis, Leucocytæmia	1	...	...	2	...	3
V.—DEVELOPMENTAL DISEASES.							
Premature Birth	55	7	5	5	16	88	
Atelectasis ... ... ...	...	...	...	1	...	1
Congenital Malformations ...	3	...	...	...	...	3
VI.—LOCAL DISEASES.							
1.— <i>Diseases of Nervous System.</i>							
Inflammation of Brain or Membranes	6	3	...	5	10	24	
Convulsions	57	12	7	22	23	121	
Other Diseases of Nervous System ...	...	...	...	...	2	2
3.— <i>Diseases of Circulatory System.</i>							
Other Diseases of Heart ... ...	...	...	...	1	...	1
Other Diseases of Blood Vessels ...	1	...	...	...	...	1
4.— <i>Diseases of Respiratory System.</i>							
Croup	1	1	2	...	...	4
Laryngitis ... ... ...	...	...	...	...	2	2
Bronchitis	32	9	8	14	19	82	
Pneumonia	16	6	...	4	9	35	
Other Diseases of Respiratory System ...	3	1	...	...	...	4
Carried forward	237	49	26	80	113	505	

TABLE VIII.—CONTINUED.

DEATHS OF CHILDREN UNDER ONE YEAR OF AGE DURING THE 52 WEEKS
ENDED DECEMBER 29TH, 1888.

CAUSE OF DEATH.	REGISTRATION SUB-DISTRICTS AND CITY.					Total in City.
	West- gate.	St. Andrew's.	St. Nicholas'.	All Saints'.	Byker.	
Brought forward	237	49	26	80	113	505
<i>5.—Diseases of Digestive System.</i>						
Dentition	8	...	...	...	7	15
Diseases of Stomach	1	...	...	1	2	4
Enteritis	6	...	...	1	4	11
Peritonitis	2	...	...	...	...	2
Obstructive Diseases of Intestine	1	1	...	2	...	4
Jaundice and other Diseases of Liver	2	...	...	...	...	2
<i>8.—Diseases of Urinary System.</i>						
Nephritis ... ... ...	...	...	...	...	1	1
<i>9.—Diseases of Re-productive System.</i>						
Female Organs ... ... ...	...	...	1	...	...	1
<i>10.—Diseases of Locomotive System.</i>						
Other Diseases of Locomotive System ... ... ...	...	...	...	1	...	1
VII.—VIOLENCE.						
<i>1.—Accident, Negligence, etc.</i>						
Burn and Scald ... ... ...	...	1	...	1	...	2
Suffocation	4	3	...	6	5	18
Otherwise	1	...	...	...	...	1
VIII.—DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES.						
Debility, Atrophy, Inanition ...	81	13	12	37	73	216
Mortification ... ... ...	...	...	...	1	...	1
Abscess ... ... ...	...	...	1	...	...	1
Hæmorrhage	1	...	...	...	1	2
Found Dead (Cause not stated) ...	3	..	...	2	3	8
Other Causes not specified or ill-defined	12	6	3	6	5	32
Total	359	73	43	138	214	*827

* Representing a rate of 5·2 per 1,000 population at all ages.

TABLE IX.

UNCERTIFIED DEATHS IN EACH SUB-DISTRICT DURING THE 52 WEEKS ENDED
29TH DECEMBER, 1888.

ALLEGED CAUSE OF DEATH.	Westgate.			St. Andrew's.			St. Nicholas'.			All Saints'.			Byker.			Total.		
	Under 1 Year.	1 Year and Under 2.	2 Years and Above.	Under 1 Year.	1 Year and Under 2.	2 Years and Above.	Under 1 Year.	1 Year and Under 2.	2 Years and Above.	Under 1 Year.	1 Year and Under 2.	2 Years and Above.	Under 1 Year.	1 Year and Under 2.	2 Years and Above.	Under 1 Year.	1 Year and Under 2.	2 Years and Above.
Premature Birth ...	*5	...	...	2	...	...	1	...	...	...	...	...	...	...	...	*8	...	...
Old Age ...	...	...	...	...	1	...	...	*2	...	...	...	...	...	...	...	...	...	*3
Apoplexy ...	**	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
Convulsions ...	***9	*1	*1	1	1	...	3	...	...	9	...	...	2	...	1	24	*2	*2
A Convulsion Fit ...	...	...	*1	1	...	...	...	...	...	...	...	2	2	...	3	2	*1	
Paraplegia, the result of Disease of Spinal Cord ...	...	...	*1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*1
Heart Disease ...	...	...	*1	...	...	...	...	...	...	...	...	...	3	...	...	...	...	*4
Malformation of Heart	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Bronchitis ...	...	...	*1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*1
Debility ...	1	...	...	...	...	...	...	1	...	...	...	...	...	2	...	...	...
Believed from Whooping-Cough and Purg- ing ...	...	...	...	...	...	...	...	...	...	*1	...	...	...	...	...	...	...	*1
Believed from Con- sumption ...	...	...	...	...	...	...	...	...	...	...	*1	...	...	...	...	...	...	*1
Believed from Con- vulsions ...	...	...	...	...	...	...	...	...	...	*1	*1	...	...	...	...	*1	*1	...
Convulsions or some Natural Cause ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Probably Acute Con- gestion of Liver ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Heart Disease or some other Natural Cause	...	...	...	...	...	...	...	...	...	*1	...	*1	...	...	...	...	...	**2
Believed from an Affection of the Throat or other Natural Cause ...	...	...	...	...	...	...	...	...	...	...	...	*1	...	...	...	...	...	*1
Believed from Inflamm- ation of the Bowels	...	...	...	...	...	...	...	...	...	*1	...	...	...	...	...	*1	...	...
Suddenly, supposed from Dropsy ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Believed from De- bility and Convol- sions ...	...	...	...	...	...	...	...	...	...	*1	...	...	...	...	...	*1	...	...
Some Natural Cause ...	...	...	...	...	...	...	...	...	...	...	...	*1	...	...	...	...	...	*1
Total ...	16	1	5	5	1	2	4	...	3	13	3	4	4	2	5	42	7	19

* The asterisks represent deaths registered on certificate from the Coroner.

TABLE X.
ZYMOTIC DISEASES, A.D. 1888

STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES,
CORRECTED BY DISTRIBUTION OF THOSE OCCURRING IN THE FEVER
HOSPITAL, BATH LANE, TO THE STREET FROM WHICH EACH PATIENT WAS
REMOVED.

LOCALITY.	* CASES AND DEATHS FROM						
	Small-pox.	Typhus Fever.	Enteric or Typhoid Fever.	Continued Fever.	Puerperal Fever.	Scarlet Fever.	Diphtheria.
Abbotsford terrace	1	...
Addison road	1
Akenside hill	1	1	...	...	...
Albert street	2	...
Albion row	8	...
" Cook's yard	2	...
" Day's buildings	2	1
Alexander street	1*	3	...	...
Alexandra place	4	...
Algernon road	1
Alma row	1	...
Alma street	3	...
Argyle street	1	...
Argyle terrace	4	...
Ashfield terrace east	1	3*
Ashfield terrace west	4	...
Back lane	1	...
Barrack road	1	...
Barrack square	1	...
Barrington street	1	...	...	...
Bath lane terrace	1	...
Beaconsfield street	1	...
Beaumont street	5	...
Belvidere street	2	...
Bentinck crescent	1	3
Bermondsey street	2	...	6	...
Blackett street	3	...
Blagdon street	1*	...
Blandford street	1	...	6	1*
Bolingbroke street	3	...
Bowman terrace	1	...	...	...
Brandling park	2	...
Brandling place south	3	...
west	1	...
Breamish street	6	...
Brewery street	1	...
Brighton grove	3	...
Brougham place	1*
Brunswick place	4	...
Buckingham street	3	...	1	...
Burdon terrace	2	...
Burnaby street	1	...
Buxton street	2	...

* The asterisks represent deaths and the numerals the total cases in each street.

TABLE X.—CONTINUED.

STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

LOCALITY.	* CASES AND DEATHS FROM						
	Small-pox.	Typhus Fever.	Enteric or Typhoid Fever.	Continued Fever.	Puerperal Fever.	Scarlet Fever.	Diphtheria.
Byker bank	6	2*
" Brough buildings...	2	...
Byker street	1	...
Byron terrace	1	...
Cambridge street	1	...
Camden street	2	...
Campbell street	1	...
Canada street	2	...	...	3	...
Cannon street	2	...
Cardigan terrace	1
Carliol street	2	...	...	...
Castle stairs	1	...
Chapel street	1	2*
Chatham place	2	...
Chester street	7*	1
Choppington street	1*
City road	2	...
Claremont place	1	...
Claremont road	1	...
Clarence street	1	...
Clayton park road	1	...
Clayton park square	7	...
Clifford street	4	1*
Close	1	...
" Jones buildings...	1	...
Clumber street...	1	...	...	1	...
Conyers road	13	...
Cook street	2	...	...	1	...
Copland terrace	1	...
Corbridge street	3	1
Crawhall terrace	2*	...
Crown street	2	...
Croydon road	6	...
Dalton street	8	...
De Grey street...	6	...
Denmark street	2	...	...	1	1
Derby street	1	1*	...	...	...
Diana street	3	...
Dibley street	1	...
Dilston road	1	...	4	...
Dispensary lane	1*	...	...	...
Dog bank	1	...	...	...	...
Douglass terrace	1	...	...	...	...
Duke street	1	...	...	...	...
Dunn street	1	...	...	...	...
Dunn terrace, Byker bank	1	...	...	1	1
Durham street	1*	...	...	...

* The asterisks represent deaths and the numerals the total cases in each street

TABLE X.—CONTINUED.
STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

LOCALITY.	* CASES AND DEATHS FROM						
	Small-pox.	Typhus Fever.	Enteric or Typhoid Fever.	Continued Fever.	Puerperal Fever.	Scarlet Fever.	Diphtheria.
Edward street	2	...
Eldon place	2	...
Eldon street	1*	...	...	1	...
Ellison place (Saville row)	1	...	...	...	...
Ellison place (St. Anthony's)	1	...
Elswick east terrace	2*	...	...	...	1*
Albert place	2**	...
Elswick road	2	...
Elswick street	2	...
Elwick's lane	2	...
Eskdale terrace	1	...
Essex street	1*	...	...	...	...
Fairless street	2	1
Falconar street	1	...	...
Fell street	3	...
Felton street	1	...
Fern avenue	1	...	...	12	1
Fernwood road	2	3
Forth banks (Infirmary)	4*	1*	...	4*	...
Wallis' yard	1	...
Forth terrace (back)	2	...
Franklin street	1	...	...	2	...
Gallowgate, Fleece court	1	...
Garth heads, Indust. dwellings	3	...
George's road	1	...
George street	3	...
Gibson street	3*	...
Glasshouse street	2	...
Glendale terrace	3	...
Gloucester road	1*	...	...	4	...
Gloucester street	1*	...
Gloucester terrace	1	...
Gluehouse lane, Joseph street	1	...
Gordon road	4	...
Gosforth street	1	...
Grace street	1*	...	...
Grafton street	1	1
Graham street	6	..
Grenville street	1	...	...	...	...
Grenville terrace	1	...
Grove street	4	1
Grosvenor place	6	3
Haldane terrace	1	...
Hamilton street	1	...	...	2	...
Hamsterley road	1*
Handyside street	1	...	...	...	...
Hannington place	1	...
Hanover square	1	...
White's yard	1	...

* The asterisks represent deaths and the numerals the total cases in each street.

TABLE X.—CONTINUED.

STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

LOCALITY.	* CASES AND DEATHS FROM						
	Small-pox.	Typhus Fever.	Enteric or Typhoid Fever.	Continued Fever.	Puerperal Fever.	Scarlet Fever.	Diphtheria.
Harbottle street	7*	...	...	2*
Harle street	1	...
Hartington street	1	...
Harvey street	2	3*
Hawes street	1	...	4	1*
Hawthorn street	2	*4**
Hawthorn terrace	3	...
Headlam street	4	*5**
Heaton park road	2	...
Heaton road	12*	...
Heaton	1
Henry street	*	...
Herbert street	2	...	4	...
High Friar street	1	...	...	...
Hill street	1	...	3	...
Holly avenue	8	...
Horatio street	3	1*
Hotspur street	5	...
Howard street	1	...
Hull street	1	...	...	...
Hutton terrace	5	...
James street	3	...
Janet street	1	...	1*	3**
Jefferson street	1*	...	8	2
Jesmond	1	...
Jesmond road	9	5
Jesmond vale	1	...	1	..
,, Kirsop street	1	...
Kensington terrace	1	...
King street	1*	...	...	...
Kirk street	1	...
Kyle street	1*
Langhorn street	1	...	2	...
Larkspur terrace	2	...
Laurel street	1	...
Lawton street	1	...
Leazes terrace	2	...
Lefroy street	1	...
Lily avenue	7	...
Lily crescent	7	...
Lime street	2	...
Lisle street	2	...
Little Blagdon street	4	...

* The asterisks represent deaths and the numerals the total cases in each street.

TABLE X.—CONTINUED.

STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

LOCALITY.	* CASES AND DEATHS FROM							
	Small-pox.	Typhus Fever.	Enteric or Typhoid Fever.	Continued Fever.	Puerperal Fever.	Scarlet Fever.	Diphtheria.	
Liverpool street	1	...	...
, Liverpool lane	1	...	...
Loadman street	1*	...	1	2	...
Lovaine crescent	2	...	...
Low Friar street	1	...	...	1	...	...
Maiden street	3	...	...
Maling street	2*	...	...
Malcolm street	5	...	...
Malvern street	2	...	...
Manor chare	1	...	...	...	...	...
Maple street	1*	...	...
Mather street	1	...	...
Matthew street	2	...	...
Melbourne street	2	...	...	...	...
Meldon street	6	...	...
Meldon terrace	1	1	...
Middle long row, Spital tongues	1*	...	...	...	...
Middle street	2	...	...
Mill lane	7	...	...
Miller's lane	1	...	...
Milton street	8	...	...
Mistletoe road	3*	...	...
Mitford street	1	...	...
Molineux street	7*	...	...
Monday street	1	...	...
Moor view	4	...	...
Morpeth street	1	...	...
Mowbray street	2	...	...
Napier street	1	...	...
Nesham street	1	1	1	...
New Bridge street	5	...	...
Newcombe street	4	...	...
Newgate street, Hall's court	1*	...	...	...	...	...
Noble street	1	...	...
Norfolk road	8*	...	...
North street	1*	...
North road	1	...	...
Northumb'd st., Elswick court	2	...	...
, St. Andrew's place	3	...	...
, Mackford's entry	1	...	...
, Northumb'd place	1*	...	...	...	...
North view	2	...	...
Oak street	3	...	...
Ouse street	2**	...
Osborne avenue	7	...	...
Osborne road	1	...	...
Osborne terrace	3	...	...
Osborne villas	2	...

* The asterisks represent deaths and the numerals the total cases in each street.

TABLE X.--CONTINUED.

STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

LOCALITY.	* CASES AND DEATHS FROM						
	Small-pox.	Typhus Fever.	Enteric or Typhoid Fever.	Continued Fever.	Puerperal Fever.	Scarlet Fever.	Diphtheria.
Otterburn villas	2	...
Otterburn terrace	1	...
Oxford street	1	...
Oystershell lane	1	...	...	...	...
Oswald terrace	1	...
Panmure street	1	...	...	11	...
Park road	2	...
Parker street	3	3*
Peel street	1
Penn street	1	...	...	...	1
Percy street	2	...	...	1	...
Lax's gardens	1	...
Picton terrace	*	2	...
Pilgrim street	1	1*	...	2	...
Bell's court	3	...	...	...	...
Forsyth's court	1	...
Low bridge	1	...	...	...	...
Wellington place	2	...
Pine street	2	2*
Pitt street	1	...
Pity me	3*
Pleasant row	1	...	...	...	...
Portland road	9	...
Portland street	1*
Potts street	1	...	4	1
Princess street	1	...
Prudhoe street	1	...	1	...
Quality row	1	...
Quayside, Broad chare	2	...
Cock's chare	1	...	...	...	...
Raby street	1*	...	...	12**	...
Railway st., Ferguson's court	1	...	...	...	...
Railway terrace (back)	1	...
Ramshaw street	1	...	...	3	...
Regent terrace	3	...
Rendel street	5	...
Richmond street	2	...
Ridley villas	5	...
Ridley terrace	4	...
River street	3	...
Robinson street	1	...	...	...	...
Ropery terrace	1	...
Ropery walk	1	...
Rosedale street	1	...	...	...	...
Rosedale terrace	1*	...	...	1	...
Rothbury terrace	5	...
Ryehill	2	...	...	3	...

* The asterisks represent deaths and the numerals the total cases in each street.

TABLE X.—CONTINUED.

STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

LOCALITY.	* CASES AND DEATHS FROM						
	Small-pox.	Typhus Fever.	Enteric or Typhoid Fever.	Continued Fever.	Puerperal Fever.	Scarlet Fever.	Diphtheria.
Salisbury street	1	...	...	...
Sanderson road	1	...
Sandhill	1	...	...	...
Sandyford road	3**	...	...	1	...
Sarah street	3	...	...	1	...
Scotswood road	5	1	...	3	...
Back Boundary st.	1	...	...	...	...
Seaham street	2	...
Sheraton street	5	...
Shieldfield green	3	...
Shieldfield lane	1	...
Shields road	3	...
Shield street	1	...	...	...
Shipley street	2	...	...	4	...
Shuttleworth street	1*	...	...
Skimmers' burn road	3	...
South view	2	...
Spencer street	1*	...
Spring garden lane	2	...
Spring street	2	...
St. Andrew's street	1	...	...	...	...
St. Ann's terrace	2	...
St. Anthony's quay	1	...
St. James' place	1	1
St. Lawrence road	4	...
St. Lawrence low road	1	...
Bottle works houses	3	...
St. Mary's place	1*	...
St. Mary street, Scott's entry	1*	...
St. Peter's quay, Foreman's row	1	...
St. Peter's road	4	1*
St. Stephen's terrace	1	...	...	...	...
St. Thomas' crescent	1*	...
St. Thomas' square	2	...
Stanhope street	1*	...	...	2	...
Stanton street	1*	...	...	15	...
Stone street	2	...
Stowell street	1*	1	...	1	...
No. 1 court	1	...	...	...	...
Stratford grove	1	...
Stratford road	1	...
Summerhill terrace	1	...
Sunderland street	1*	...	...	...	...
Swan street	1	...	...	...	...
Sycamore street	5	...
Tamworth road	1	...
Temperance row	1	...
Terrace place	1*	...	...
Teynham street	1	...	...	...	...
Thornborough street	2	...

* The asterisks represent deaths and the numerals the total cases in each street.

TABLE X.—CONTINUED.

STREET LIST OF CASES AND DEATHS FROM THE UNDERMENTIONED DISEASES.

LOCALITY.	* CASES AND DEATHS FROM						
	Small-pox.	Typhus Fever.	Enteric or Typhoid Fever.	Continued Fever.	Puerperal Fever.	Scarlet Fever.	Diphtheria.
Turner terrace, Walker road...	2	...	...	..	...
Tuthill stairs	2	...	...	...	...
Tynemouth road	3	...
Tyneside terrace	1
Victoria place	1	...	...	...	...
Victoria square	2	...
Villa place, Cross Villa place, No. 3	3	...
Walker road	1	...	...	9	2*
Walter terrace	3	...
Warkworth street	1	...	...	...	1
Warwick street	1	...
Water street	2	1*
Waterloo place	*
Wellesley terrace	1	...
Wellington street	1	...	...	...	...
Wentworth place	2	...
Wesley street	6	...	...	1	...
Westgate road... ," Workhouse	3	2*
Westmorland road	1	...	...	1**	...
Westmorland terrace	5	...
Wigham street... Windsor terrace	1
Wolsley road	3	7
York street	1	...
Yorkshire street	1	...	...	...	...
TOTAL	4	122	17	5	749
							97

* The asterisks represent deaths and the numerals the total cases in each street.

N.B.—In four cases the cause of death only is recorded, owing to their being notified towards the close of 1887.

TABLE XI.

ADMISSIONS TO AND DEATHS AT THE FEVER HOSPITAL, BATH LANE, AND CITY HOSPITAL FOR INFECTIOUS DISEASES AT WALKER, FROM 1ST JANUARY TO 31ST DECEMBER, 1888.

DISEASES.	ADMISSIONS.												DEATHS.										
	Fever Hospital, Bath Lane.					City Hospital for Infectious Diseases.				Fever Hospital, Bath Lane.			City Hospital for Infectious Diseases.										
	Jan.	Feb.	Mar.	April	May.	June	July	Aug.	Sept.	Total	Oct.	Nov.	Dec.	Total	Jan.	Aug.	Sept.	Total	Oct.	Nov.	Dec.	Total	
Scarlet Fever ...	1	5	2	4	1	3	13	3	...	32	11	1	6	18	50	...	...	...	1	...	...	1	1
Typhus Fever ...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	2	...	...	...	...	...	...	...	...
Enteric Fever ...	3	1	...	1	...	...	2	3	10	2	3	6	11	21	1	2	1	4	...	1	...	1	5
Diphtheria ...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...
Febricula...	...	...	...	...	...	...	1	1	...	2	...	...	...	2	...	...	...	...	...	...	...	...	...
Other Diseases, not Febrile {	...	...	1	1	...	1	...	1	...	4	1	...	1	2	6	...	...	...	...	1	1	1	1
TOTAL ...	4	6	4	6	1	4	14	7	3	49	14	5	14	33	82	1	2	1	4	1	1	1	7

The deaths in the City Hospital for Infectious Diseases, 3 in number, are included in the returns for Walker Local Board District, and (except in the above Table) not in those of Newcastle.

TABLE XII.

RETURN OF SUSPECTED AND UNWHOLESOME PROVISIONS INSPECTED DURING THE YEAR 1888.

PROVISIONS INSPECTED.	Amount of Provisions Inspected.	CONDITION.		BAD—HOW DISPOSED OF.	
		Fit for Food.	Unfit for Food.	Destroyed by Order of Justice.	Destroyed with Owner's Consent.
Carcases of Beef...	156	93	63	3	60
Quarters of Beef...	15	...	15	6	9
Carcases of Veal...	30	6	24	...	24
,, Mutton ...	397	200	197	...	197
,, Pork...	178	116	62	...	62
Rabbits ...	62	...	62	...	62

Of the carcases of beef returned as fit for food, 37 of the animals had been bruised during transit. The bruised parts were cut off and destroyed. A number of the carcases of mutton and pork were similarly dealt with.

Six persons have been summoned for being the owners of diseased meat intended for human food. Two were fined £10 and costs each, and two £5 and costs each. In two instances the cases were dismissed.

(Signed) WM. HEDLEY, INSPECTOR.

Health Department, Town Hall,
March, 1889.

TABLE XIII.

RETURN OF FISH RECEIVED IN NEWCASTLE FISH MARKET, CLOSE, FROM
2ND JANUARY TO 29TH DECEMBER, 1888.

DESCRIPTION.	DELIVERED BY BOAT.						DELIVERED BY RAIL.					
	Baskets.	Barrels.	Boxes.	Kits.	Bags.	Fish.	Baskets.	Barrels.	Boxes.	Kits.	Bags.	Fish.
Conger ...	51	...	...	...	...	...	1	2	...	...	...	...
Cod ...	...	...	...	...	...	...	24	350	...	...	...	...
Gurnet ...	1	...	...	...	...	...	...	...	...	...	...	...
Haddock ...	31	93	...	...	...	...	339	229	...	...	...	...
Herring ...	1,773	...	...	...	...	...	9	559	6	...	...	...
Ling ...	15	27	...	...	...	...	21	1,681	...	...	...	...
Mackerel ...	...	...	137	...	...	...	...	...	1,418	...	...	...
Salmon ...	...	...	29	...	...	...	...	...	23	...	...	...
Trout ...	...	...	1	...	...	...	...	...	11	...	...	...
Black Jack...	...	2	...	...	...	...	1	5	...	...	...	...
Whiting ...	7	1	...	...	...	...	...	...	...	...	...	...
Halibut ...	21	5	...	...	...	...	51	98	27	...	...	...
Plaice ...	84	13	...	...	...	...	83	22	...	20	...	...
Skate ...	...	58	...	...	...	...	11	249	...	...	...	...
Soles ...	...	.9	...	...	...	...	4	...	...	...	...	...
Cat-fish ...	...	...	...	...	...	...	...	...	...	...	...	3
Monk-fish ...	...	1	...	...	...	...	1	2	...	...	...	...
Cockles ...	...	...	...	...	...	...	...	...	...	16	...	...
Mussels ...	...	...	...	...	...	...	...	88	...	...	...	...
Crabs ...	...	...	...	...	...	57	...	292	...	...	...	...
Lobsters ...	...	...	...	...	...	...	...	2	...	...	...	...
Whelks ...	...	...	...	...	...	...	...	...	...	...	...	...
Winkles ...	...	...	...	...	...	...	...	148	...	...	91	...
Shrimps ...	...	...	...	...	...	...	5	...	...	...	...	...
Prawns ...	...	...	...	...	...	...	5	...	...	...	...	...
Findon Had-docks ...	...	...	...	...	...	...	...	316	1,223	...	...	...
Kippers ...	...	399	...	...	...	...	...	...	4,407	...	...	...
Bloaters ...	157	150	...	...	...	...	4,085	...	3,700	...	...	...
Sprats ...	...	8	...	...	...	...	...	34	...	...	...	...
Totals in 1888	315	2,087	716	...	57	...	4,640	4,077	10,815	20	107	3
Totals in previous year...	2,869	11,416	33	7	...	144	3,482	5,769	21,120	13	711	53

(Signed) WILLIAM T. CLARKE,
CHIEF INSPECTOR OF NUISANCES, AND INSPECTOR OF FISH.

TABLE XIV.

INFECTED ARTICLES DESTROYED AND REPLACED BY THE HEALTH DEPARTMENT DURING THE YEAR 1888.

48 Straw Mattresses. 16 Straw Beds. 8 Bed Ticks.	4 Flock Beds. 1 Rabbit Down Bed.
INFECTED ARTICLES PURIFIED IN THE DISINFECTING APPARATUS.	
FROM THE CITY.	FROM THE FEVER HOSPITAL.
254 Feather Beds. 259 Flock ," 738 Mattresses. 1,026 Pillows. 439 Bolsters. 722 Blankets. 260 Counterpanes. 430 Quilts. 168 Bed and Window Curtains. 178 Cushions. 123 Hearth Rugs and Door Mats. 188 Carpets. 260 Books. 459 Articles of Wearing Apparel. 390 Miscellaneous Articles.	33 Beds. 19 Mattresses. 25 Pillows. 40 Blankets. 30 Counterpanes. 584 Articles of Wearing Apparel. 6 Boxes of Nurses' and Servants' Clothing. 90 Books. 52 Sundries.

TABLE XV.

SUMMARY OF CASES DISINFECTED BY THE HEALTH DEPARTMENT DURING THE YEAR ENDED 31ST DECEMBER, 1888.

WARDS.	NATURE OF DISEASE.								TOTAL.
	Small-pox.	Scarlet Fever.	Diphtheria.	Typhus Fever.	Enteric or Typhoid Fever.	Continued Fever.	Puerperal Fever.		
Elswick East	30	9	...	7	...	...	...		46
" North	49	5	...	3	...	1			58
" South	60	8	...	14	6	...			88
Arthur's Hill	53	1	...	9	...	1			64
Westgate North	25	2	1	11	2	...			41
" South	23	3	...	9	2	...			37
St. Andrew's North	25	1	...	2	1	1			30
St. John's	4	2	...	...	...	...			6
St. Nicholas'	5	...	...	2	1	...			8
All Saints' West	4	1	3	9	...	...			17
" East	60	2	...	4	2	...			68
" North	60	2	...	18	1	1			82
St. Andrew's South	28	...	...	9	1	...			38
Jesmond	105	21	...	2	...	...			128
Heaton	71	7	...	5	...	...			83
Byker	147	33	...	18	1	1			200
Total	749	97	4	122	17	5			994
Total Infected Households disinfected during the year								...	666

TABLE XVI.—NUISANCE REMOVAL.

SUMMARY OF NOTICES SERVED FOR NUISANCES DURING THE YEAR ENDED 31ST DECEMBER, 1888.

NATURE OF OFFENCE, OR REMEDY REQUIRED.	No. 1 DISTRICT.			No. 2 DISTRICT.			No. 3 DISTRICT.			No. 4 DISTRICT.			TOTAL.		
	Informal.		Total.	Informal.		Total.									
	* Formal.	Formal.	Total.	* Formal.	Formal.	Total.									
Rooms ordered to be closed, as being unfit for human habitation ...	... 6	4	10	... 17	10	27	... 8	7	15	... 2	15	31	... 15	15	62
Rooms cleaned and repaired ...	... 16	16	9	20	29	39	39	39	8	... 3	31	83	9	83	92
Overcrowding ...	... 6	95	2	63	9	50	59	59	8	... 8	9	9	17	17	243
Dilapidated yards and passages ...	... 164	164	5	107	112	13	95	95	24	24	24	18	18	18	395
Dirty yards, passages, staircases, etc.															
Defective & badly-constructed drains & sinks, bath, lavatory, & cistern wastes connected to soil-pipes or drain ...	46	158	204	48	169	217	125	198	323	2	74	76	221	599	820
Water-closets choked and defective ...	21	146	167	17	149	166	44	100	144	1	9	10	83	404	487
New water-closets ...	16	52	68	3	22	25	8	70	78	... 184	1	27	27	328	355
Defective soil-pipes ...	10	3	13	7	4	11	10	11	21	... 1	1	16	19	228	244
Defective ash-closets ...	... 14	14	6	53	53	15	70	85	91	92	1	16	16	22	24
New ash-closets ...	6	61	67	13	37	50	6	51	57	2	8	8	217	27	244
Privies and ashpits defective ...	1	54	55	4	67	71	7	21	28	1	7	8	13	149	162
New tubs for ashes ...	... 14	15	10	40	50	24	19	40	64	3	9	12	38	103	141
Offensive accumulations, etc., ...	1	4	4	15	19	2	11	13	... 2	2	2	6	32	32	38
Swine and other animals kept ...	... 16	16	17	5	15	20	5	18	23	... 6	6	11	55	66	66
Defective water-spouts, causing damp in rooms ...	1	46	49	3	21	24	13	19	32	... 7	7	19	93	112	112
Water supply ...	3	1	5	1	6	12	1	13	2	... 1	2	23	3	26	26
Smoke nuisance ...	4	5	2	7	7	2	9	7	14	4	1	5	23	12	35
Other nuisances ...	... 128	851	979	159	795	954	308	811	1,119	16	688	704	611	3,145	3,756
TOTAL	... 128	851	979	159	795	954	308	811	1,119	16	688	704	611	3,145	3,756

* By "Informal Notice" is to be understood any communication made verbally or by letter. "Formal Notices" are those served under the Statutes.
 During the past year 701 connections have been made with the common sewers.
 No magisterial proceedings for enforcing the abatement of nuisance have been taken during the year.
 (Signed) WILLIAM T. CLARKE, Chief Inspector of Nuisances.

TABLE XVII.
1888.—RAINFALL, MEAN TEMPERATURE, ETC.*

1ST QUARTER.			2ND QUARTER.			3RD QUARTER.			4TH QUARTER.		
Week ended	Rainfall. Inches.	Mean Temp. Deg. Fahr.	Week ended	Rainfall. Inches.	Mean Temp. Deg. Fahr.	Week ended	Rainfall. Inches.	Mean Temp. Deg. Fahr.	Week ended	Rainfall. Inches.	Mean Temp. Deg. Fahr.
Jan. 7...	0·10	39·0	Apr. 7...	0·26	37·5	July 7...	1·49	50·6	Oct. 6...	0·71	39·3
," 14...	0·05	38·6	," 14...	0·23	43·6	," 14...	0·66	51·0	," 13...	0·09	44·5
," 21...	0·22	35·5	," 21...	0·84	47·8	," 21...	1·50	56·1	," 20...	<i>Nil.</i>	46·6
," 28...	0·46	39·3	," 28...	0·12	42·6	," 28...	1·55	56·6	," 27...	0·01	48·5
Feb. 4...	0·95	36·5	May 5...	0·13	48·0	Aug. 4...	0·10	52·1	Nov. 3...	1·45	47·5
," 11...	0·12	43·6	," 12...	<i>Nil.</i>	48·0	," 11...	0·66	59·8	," 10...	0·07	43·5
," 18...	0·69	31·3	," 19...	0·06	51·0	," 18...	0·20	53·1	," 17...	1·27	45·8
," 25...	0·58	33·5	," 26...	0·02	49·8	," 25...	0·45	58·0	," 24...	0·38	46·3
Mar. 3...	0·43	35·0	June 2...	0·55	48·3	Sept. 1...	0·55	52·0	Dec. 1...	1·62	41·6
," 10...	0·09	45·0	," 9...	0·98	48·8	," 8...	0·47	53·5	," 8...	0·10	46·8
," 17...	2·21	32·0	," 16...	0·46	54·5	," 15...	0·29	52·8	," 15...	<i>Nil.</i>	33·6
," 24...	0·50	36·6	," 23...	0·09	48·4	," 22...	<i>Nil.</i>	51·5	," 22...	0·07	39·3
," 31...	2·76	36·8	," 30...	0·42	53·6	," 29...	0·15	48·0	," 29...	0·56	37·7
TOTAL...	9·16	Mean. 37·1	TOTAL...	4·16	Mean. 47·8	TOTAL...	8·07	Mean. 53·5	TOTAL...	6·33	Mean. 43·2

Total Rainfall during the Year 1888 = 27·72 inches.

Mean Temperature during the Year 1888 = 45·4 deg. Fahr.

* Supplied by the courtesy of Mr. William Lyall, Librarian, Literary and Philosophical Society.

A P P E N D I X B.

City and County of Newcastle-upon-Tyne.

R E P O R T

ON AN

OUTBREAK OF SCARLET FEVER

IN

JESMOND, NEWCASTLE-UPON-TYNE.

NEWCASTLE-UPON-TYNE :

ANDREW REID, PRINTING COURT BUILDINGS, AKENSIDE HILL.

—
1888.



CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

R E P O R T

ON AN

OUTBREAK OF SCARLET FEVER

IN

JESMOND, NEWCASTLE-UPON-TYNE.

ON the afternoon of the 31st January last attention was drawn to the occurrence of Scarlet Fever in Jesmond, from the fact that after the disease had been almost entirely absent for some time, in five days it had been notified in three different houses, having nothing in common except that all derived their milk from the same dairy. This fact soon became accentuated by the occurrence of fresh cases in other households under precisely similar circumstances.

Extent of Outbreak.—The first case in the outbreak was notified on January 27th and the last on February 6th. In this period of eleven days 19 cases of Scarlet Fever in 16 different households were reported in the part of the City to the north of the Leazes and Sandyford Road, and including one case in a house abutting on the south side of this road. Two only of these occurred to the west of the Moor Road. Of these 19 cases, 17 were supplied with milk from the dairy of Mr. Stephen Fairbairn, South Gosforth Farm.

From the 1st of January to the date of this report (28th February) three other, households only in the area have been invaded with Scarlet Fever. Some particulars of the cases in the dairy custom are given below :—

HOUSEHOLDS IN WHICH SCARLET FEVER WAS NOTIFIED AND WHICH DERIVED
THEIR MILK SUPPLY FROM SOUTH GOSFORTH FARM.

Number of Cases.	Date of Notification.	Initial of Person Infected.	Locality.
1	January 27, 1888	P.	Windsor Terrace.
2	" 30, "	T.	Jesmond Road.
1	" 31, "	S.	Haldane Terrace.
2	February 1, "	McL.	Jesmond Villas.
1	" "	C.	M— Jesmond.
1	" "	M.	Eldon Street.
1	" "	McL.	Abbotsford Terrace.
1	" "	R.	Lily Avenue.
1	" 2,	N.	E— Clayton Park Road.
1	" "	D.	Victoria Square.
1*	January 31, "	T.	Jesmond Road.
1	February 3, "	D.	Eskdale Terrace.
1	" "	C.	M— House, Jesmond.
1	" 4,	L. with R.	Victoria Square.
1	" 6, "	S.	Claremont Place.

* Before taking ill this child had been removed from an infected house in Jesmond Road.
See above (T).

Hitherto no death has been reported among these cases.

As already stated suspicion of the milk supply was roused at an early stage of the outbreak. In each case, as it came under notice, every other known channel or medium for the transmission of infection was inquired carefully into. In none of the cases was there any ground to suspect that the infection came from any other common source, or indeed, with the possible exception, presently to be mentioned, from any source whatever, except that already indicated. The possible exception is this:— Two boys (McL. and C.) from different houses, who caught the disease, were pupils at a private school at which a boy from a third infected house (P.) attended. But it was ascertained from the principal of the school that one of the first two mentioned boys was absent from school ten days before the appearance of Scarlet Fever in the house of the third boy P. (who himself remained healthy). The date at which the boy C. sickened was three days after the first feeling of illness of the case P., hence rendering it probable that he had not contracted infection from that case.

The cases were scattered over an area measuring about a mile across. They all occurred in well-to-do families, and in houses the sanitary arrangements of which were generally satisfactory.

A plan showing the cases in connection with the milk supply in question and others notified this year was submitted.

INQUIRY.

On my attention being directed to the milk supplied to the infected households I communicated without delay with the Medical Officer of Health for Gosforth, Dr. Galbraith, who replied under date February 1st, that after inquiry he had failed to find any trace or history of Scarlet Fever in any of the families on the farm; and that among upwards of 50 families in Gosforth supplied with milk from that dairy there was not, so far as he knew, a case of Scarlet Fever in the place. Other cases of Scarlet Fever among the Newcastle customers of the dairy coming to my knowledge, I visited the farm on February 5th with Dr. Galbraith and our Inspector under the Dairies Order (Mr. Hedley), who had previously seen Dr. Galbraith on my instruction.

The Dairy.—We found a herd of 35 cows at the farm all in milk. Cattle not in milk are kept at another farm some distance away. We were informed that no cow had been brought to, or sent away from, the South Gosforth farm lately. I noticed that the hind quarters of one or two of the cows were slightly denuded of hair, and on inquiry was told that this was due to the casting of their coat, usual at this season, which leads the animals to rub and scratch themselves, often severely. One cow had a chapped teat. There was no sign or trace of a vesicle or an ulcer on the teats of any cow. At my request Mr. Clement Stephenson afterwards examined the herd, as will be stated later in this report. The farm buildings are substantial and well built, and no special defect was noted in connection with them. The water is supplied by the Newcastle and Gateshead water Company. There is an old pump in the garden, but there is no likelihood of its having been used for a considerable time.

The yield of milk at the farm is about 100 gallons per day (60 gallons in the morning and 40 in the afternoon). Almost the whole of each "meal" of milk is emptied into a large tin vessel and mixed. It is then put into four tin "churns" for delivery. A small quantity is sent out in small private tins (baby's milk, etc).

Dairy Business.—The dairy business is managed by five persons, three men and two women, all of whom live in cottages on the farm. They all milk the cows. One of the women (Johnson) washes the milk vessels. Two of the men (Spoor and Rowlinson) distribute the milk to the customers.

Occasional Supply from other Sources.—With certain exceptions, all the milk supplied to Mr. Fairbairn's customers is produced on the farm as above indicated. The exceptions are—when the amount for a delivery accidentally runs short and additional milk has to be bought on the road

from other retailers. Thus Spoor has often had to buy milk lately from Hall, of Three Mile Bridge, and Redhead, of Spital Tongues, milk dealers. Hall's milk so bought has generally been about $1\frac{1}{2}$ gallons in quantity, and was put into the general stock at the beginning of the delivery. Redhead's supply, on the contrary, has been got when the stock was low, and has been delivered unmixed. The milkman Spoor has also occasionally bought milk from the carts of the Haltwhistle Dairy.

The milkman Rowlinson has occasionally got extra supply from the milkmen of Dodds, of Fenham, Gibson, of Kenton, Urwin, Back Hill Street, Newcastle, and perhaps others. He says he has bought very little milk lately.

These adventitious supplies were inquired into, and will be presently referred to.

Health of the Dairy-workers and their families.—I visited the cottages of the persons engaged in the dairy business, and inquired closely into the health of the families. There was no evidence whatever of the presence of infectious disease at the time of my visit. In the family of the milkman Rowlinson, consisting of two parents and six children, one boy was convalescent after chest ailment. In September last three of the children are reported to have had Mumps. On being questioned, the mother stated that one of these (Ellen) had also Rheumatic Fever (swelled joints, etc.), but she had no rash. The mother says that at the time the girl was ill a boy (Harry) had Measles. *None of the children peeled.* The households of the other dairy-workers were free from suspicion as to infectious disease.

Dr. Horace Paige, Gosforth, states that he attended Rowlinson's children about the end of September last for an anomalous feverish ailment. The girl was affected as described by her mother, and the boy was feverish and had a mottled eruption on the lower limbs, with very slight sore throat, but no vomiting or subsequent desquamation. The case, in Dr. Paige's opinion, resembled one of ill-developed German Measles. A third child had Mumps, without rash. (Dr. Galbraith states that Mumps was epidemic in Gosforth at the time in question.) I was informed that the house was disinfected and cleansed after the cases recovered.

On my third visit to South Gosforth Farm, made for the special purpose of further inquiring as to whether it were possible that any infected article of clothing, etc., might have been put away last autumn and brought out again lately and so have led to the infection of the milk, I

failed to find anything to justify suspicion of such a thing. The milkman's work-clothes (two suits) had not been specially disinfected, but they are stated to have been washed more than once since the sickness. The sick-room had been fumigated with sulphur and thoroughly cleansed.

Household at Gosforth South Farm.—Mr. Fairbairn's household consists of six persons, viz. :—The two parents, two children, and two female servants. He states that they have all been free from sickness. One of the servants, however, had at the date of my first visit traces of Follicular Tonsillitis, from which, on inquiry, it appeared she had been ailing for a week or more though not off her work.* None of the household are engaged in the dairy business.

Extent of the Dairy custom and its relation to the Outbreak of Scarlet Fever.—Mr. Fairbairn on being asked at once furnished a list of his dairy customers. 185 households in Newcastle are supplied with milk by him. The milkman Spoons has, in his "walk" in Newcastle, 88 customers, of whom the families of 5 (or about $5\frac{1}{2}$ per cent.) have recently been infected with Scarlet Fever. The milkman Rowlinson has 97 customers in the City, of whom 9 families (or above 9 per cent.) have recently had Scarlet Fever.

The lists of customers in each "walk" shows the names of the families in the order in which they were supplied. Scrutiny of these yields no special information as to the incidence of the disease on any particular section of the "walks."

It appears that at four houses only were private tin milk bottles left, viz., one in the "walk" of Rowlinson (this house was infected); and three, all of which remained free from infection, in the "walk" of the milkman Spoons.

One of the infected families had, for about three weeks before the disease appeared in the house, been supplied with milk from two dairies (Mr. Fairbairn's and another) at the same time.†

In addition to the Newcastle custom, the list supplied contains the names and addresses of 31 customers in Gosforth. As previously stated Dr. Galbraith was not aware of any case of Scarlet Fever among the Gosforth customers, or indeed at Gosforth at all. Very soon after my

* I examined this servant very carefully on two separate occasions and found no peeling of the skin or sign of other ailment than that of the tonsil, which was to my mind unmistakable.

† It is possible that this patient may have been infected from a totally different source as, some days before taking ill, he was in the company of a child who two days afterwards developed Scarlet Fever.

inquiry began I was informed by a medical practitioner in Newcastle of a case of the disease in Rectory Terrace, Gosforth, under his care in a family supplied with this particular milk. It was also reported to me that there was a case of Scarlet Fever some six weeks before the inquiry in Gosforth Terrace, and another more recently in Row's Terrace, Gosforth, the former taking the milk in question, the latter not. The notification of infectious disease in Gosforth not being obligatory the existence of these cases, unknown to the Medical Officer of Health, is not surprising.

As already mentioned, the two milkmen from Mr. Fairbairn's farm have occasionally bought milk from other dairymen to eke out their own supplies. The Disease Inquiry Forms, filled in by the Special Inspectors of the Health Department at the house of every case of notified disease in the City, show that no Scarlet Fever has recently been reported in the custom of any of these dairymen. Such of the dairies as are in Newcastle have been visited by us and found free from suspicion. Those in the country are similarly reported on by the respective Medical Officers of Health. There is therefore no ground to suppose that infection was introduced among the customers of the Gosforth South Farm Dairy by milk from an occasional source.

Health of the Cows at the Farm.—At my request Mr. Clement Stephenson, F.R.C.V.S., Chief Veterinary Inspector for the County, met me at the farm on the 6th February and carefully examined each cow there. After doing so he gave the following certificate to Mr. Fairbairn :—

(COPY.)

6th February, 1888.

I certify that I have this day, at the request of Dr. H. E. Armstrong, Medical Officer of Health of Newcastle-on-Tyne, examined the whole of the cows (35) at Mr. Fairbairn's, Gosforth, and find them all in good health.

(Signed) CLEMENT STEPHENSON, F.R.C.V.S.,
Chief Vet. Inspector for County of Northumberland.

On the same day I gave the following certificate to Mr. Fairbairn :—

(COPY.)

Newcastle-upon-Tyne,

6th February, 1888.

Owing to an outbreak of Scarlet Fever in Newcastle, in connexion with the milk supplied by Mr. Fairbairn, South Gosforth Farm, I have, accompanied by Dr. Galbraith, Medical Officer of Health, Gosforth, visited the Farm on two occasions and examined the different persons engaged in the Dairy Business. The Dairy Farm appeared to me to be in good order. I have found no cases of Scarlet Fever on the Farm, or hitherto have received confirmation of the suspicion which led to the investigation.

(Signed) HENRY E. ARMSTRONG,
Medical Officer of Health.

Observations.—Although the most important link in the chain of evidence is wanting, the facts connecting the recent appearance of Scarlet Fever in the northern part of the City with the milk supply from Gosforth South Farm, are too pronounced to be merely coincidental. In a large open, well maintained, and previously healthy district, like that in question, the sudden invasion, and as sudden disappearance of a short and incisive outbreak of infectious disease can only be due to some cause affecting in common the victims to it. The most careful inquiry has failed to show any condition to which the sufferers from the outbreak under report were in common subjected, except that 17 out of 19 of these took milk from the same supply.

Failure to find evidence of recent infection at the farm raises various questions for consideration, viz. :—

- 1.—Was the disease of the Rowlinson children in September last Scarlet Fever, and if so, was infection in any way transmitted from those children to the milk customers nearly five months afterwards?
- 2.—Has there been any concealed or undetected Scarlet Fever or other human infectious disease on the farm?
- 3.—Was the outbreak in Newcastle genuine Scarlet Fever or some other febrile eruptive disease resembling it?
- 4.—Is there any ailment or condition of cattle that could so affect the milk as to give rise to an outbreak of Scarlet Fever or disease resembling Scarlet Fever among the consumers?

I am strongly of opinion that the ailment of Rowlinson's girl, at least was Scarlet Fever. Her mother's account of her having Mumps followed by Rheumatic Fever, at the time another member of the family had Measles is a history that no medical man could but regard as strongly suspicious that all three ailments were Scarlatinal and nothing else.

Whether infection could under existing circumstances be retained from these cases, and communicated to the milk after the lapse of time which occurred, cannot be proved. I think it scarcely probable.

If there have been any concealment it has been very dexterously managed. From first to last I believe Mr. Fairbairn to have been straightforward and open. The ailment of his domestic servant was, I consider, undoubtedly what I have described it to be, and not to be regarded as a possible case of unrecognised Scarlet Fever.

As to the real *nature of the outbreak* in Newcastle :—the 17 cases were notified by eight different medical men distinctly as Scarlet Fever (or Scarlatina), a diagnosis I have no right to question. One of the cases so reported came under my own observation in the person of a domestic servant who was removed to the Fever Hospital. This case certainly presented the ordinary signs of a mild attack of Scarlet Fever (vomiting, followed by Fever, sore throat, red eruption, and desquamation of skin).

We cannot, however, positively affirm that the many and various symptoms now classed under the term Scarlet Fever are not indeed those of different diseases, which we have not yet learnt to distinguish from each other.

At present, whilst we are completely in ignorance as to the origin of Scarlet Fever, it is not surprising that the cause of such outbreaks as that just reported is sought in the animals yielding the milk, distribution of which coincides with the distribution of the disease. It was with the view of clearing up all question as to the presence of scabbed teats in the South Gosforth herd, and of satisfying myself as to the loss of hair in some of the cattle, that the opinion of Mr. Clement Stephenson was asked.

In connection with this part of the subject, the milk of recently calved cows may be, and sometimes is, mixed with other milk and sold at too early a stage. Complaints are occasionally made to us as to the smell and taste of such milk. Again, the effect produced on the milk by the slight and periodical ailments of cows, even when accompanied by increased temperature of the body, is but lightly regarded by dairymen, and such milk is not always withdrawn from distribution. There is probably room for investigation here.

A Former Experience.—The outbreak here described recalls, in certain particulars, a similar occurrence in the northern half of the Westgate Registration Sub-district of Newcastle in 1879. On that occasion the outburst was short, clearly defined, and similar in extent, but much more virulent than the recent one.* Then, also, the only common feature was the milk supply, and no Scarlet Fever in connection with the dairies supplying the milk was detected. With one exception, all of the households then invaded in a large area derived their milk directly or indirectly from one or other of two dairies, who interchanged milk for the mutual convenience of trade. In the investigation at that time several complaints

* 10 deaths in a total of 23 cases (see Annual Report of the Medical Officer of Health for 1879). Several of the fatal cases ran a remarkably rapid course,

were made that the milk smelled and tasted badly and did not keep well. Some of the milk complained of was found to be laden with Cholesterine corpuscles, thus proving it to be the yield of recently calved cows.

In 1879 the inquiry was tedious and difficult, owing to the want of notification of the cases of sickness and the fact that one large milk retailer declined to furnish a list of her customers, which at that time we had no power to compel. On the present occasion there have been no difficulties of this kind.

A Suggestion.—The only precaution I considered it necessary to suggest to the proprietor of the dairy at Gosforth South Farm was that he should provide the dairy-workers with blouses or overcoats to wear whilst milking or handling the milk at the farm. This was at once attended to.

HENRY E. ARMSTRONG,

MEDICAL OFFICER OF HEALTH.

*Health Department,
Town Hall, Newcastle-upon-Tyne.
28th February, 1888.*



A P P E N D I X . C.

City and County of Newcastle-upon-Tyne.

R E P O R T

ON AN

OUTBREAK OF SCARLET FEVER

DURING THE SUMMER OF 1888,

IN A DAIRY CUSTOM.

NEWCASTLE-UPON-TYNE:
ANDREW REID, PRINTING COURT BUILDINGS, AKENSIDE HILL

1888.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

R E P O R T

ON AN

OUTBREAK OF SCARLET FEVER

DURING THE SUMMER OF 1888,

IN A DAIRY CUSTOM.

THE subject of the present Report is the fifth outbreak of Scarlet Fever in Newcastle-upon-Tyne during the past ten years and the third during the past ten months, in connection with the Supply of Milk from particular dairies—a different dairy being implicated in each case.

The first of these outbreaks occurred in 1879 and was one of small numbers but remarkable fatality. The second in 1883* was larger but less virulent. The third, which appeared toward the close of 1887, and the fourth which took place in January last, were small and mild in type. That now under consideration, both in point of numbers and in other respects, presents features of special interest.

Beginning of the Outbreak.—On the afternoon of Monday, July 2nd, 4 cases of Scarlet Fever were notified in 4 different households in the City—all of which were reported to me by the Special Inspector of the district as being supplied with milk by Mr. Edward Dodgson, dairyman, Gosforth. For some time prior to this there had been very little Scarlet Fever in the City. In the fortnight ended June 30th 13 cases only were reported. One only of these was within the area presently to be referred to, and no two of the 13 households got their milk from the same dairy. The cases notified on July 2nd had no other feature in common than

* See Special Report on the Increased Death Rate of Newcastle in 1883, page 45. The 1883 outbreak of Scarlet Fever was intimately associated with milk supplied at a farm where some of the children had *Sore Throats without eruption*.

that named. Next morning I received notification of several other cases, including five from Dr. Samuel Macaulay, who wrote drawing attention to the fact that they also had consumed milk from the same place.

The Dairy.—On the afternoon of the same day, along with Inspector Hedley, I called on Dr. Galbraith, Medical Officer of Health, Gosforth, who is also private medical adviser to Mr. Dodgson, and we visited the dairy together. In the absence of the dairyman, Miss Dodgson, his daughter, stated that none of the residents in the house had had any ailment whatever for at least six months, and have never suffered from infectious disease since they came there several years ago, which statement was confirmed by Dr. Galbraith.

The household consists of Mr. Dodgson, his two sons, two daughters, and two domestic servants.

We examined the cattle, 18 in number, and found them to be unquestionably healthy. They have all smooth, clean coats, bright eyes, and natural teats. They were attended to by the dairyman, his son, and a helper named Christopher Rutter, and by no one else. Miss Dodgson and her two house servants handle the milk in the dairy, and it is delivered to customers in Newcastle and Gosforth by Mr. Dodgson and his son.

The cowhouses are roomy and in very fair sanitary condition. The dairy is clean, airy, and wholesome. The water both for dairy and cowhouses is that of the Newcastle and Gateshead Water Company. Except a small quantity from a single cow, for babies, the entire yield of each "meal" of milk is put altogether into a large vessel and mixed before being emptied into the delivery cans.

A list of customers was asked for and in due time was furnished.

Disease in relation with a Dairy Worker.—The helper Rutter, who was interrogated at the dairy, lives with his wife and four children at No. 12, Garden Street, Gosforth. He said they were "all well and had never had Scarlet Fever or Sore Throats."

With Dr. Galbraith I then went to Rutter's house and examined the children. Two of them were pale and delicate looking. The following are my notes of the cases :—

"Catherine, æt. 5 years, has a little enlargement (perceptible externally) of each tonsil, with redness of the fauces.

"Robert, æt. $3\frac{3}{4}$ years, has tonsils considerably enlarged, with redness of palate and fauces.

"John, aged $8\frac{1}{2}$ years, has enlargement of tonsils, perceptible externally, and reddish fauces.

"The fourth child has very little apparent ailment.

"None of the children have any sign of desquamation."

The mother stated that they had not been laid up, or shown signs of skin eruption or ailment.

On leaving the house we returned at once to the dairy, and prohibited Rutter from coming near the premises or taking any part in the business, which Miss Dodgson promised should be carried out forthwith, and which Mr. Dodgson afterwards told me had been done.

I learnt that "bad throats" had been prevalent in Gosforth for some time before my visit.

Progress of the Outbreak in Newcastle.—By next day (4th July) the cases of Scarlet Fever in the custom of this dairy had increased to 22, out of a total of 24 notified in the entire city during the first four days of the month. It then became a question whether I was justified in allowing this milk supply to be continued to the inhabitants of Newcastle on the evidence and after the action taken as above described. The case stood thus.—Here is a sudden outbreak of Scarlet Fever in a large and well-to-do district of the city, confined to the customers of a cleanly dairy of healthy cattle. The children of a non-resident servant of the dairy have Sore Throats. It is promised that the servant shall not come near the dairy or milk until authorised by me to do so. If infection came from these children, is not the action taken sufficient to protect subsequent yields of milk? What *proof* is there that the milk is now infected? and what justification for prohibiting it at this present stage?

After consultation with Mr. T. B. Winter, Chairman of the Sanitary Committee, and the Town Clerk, I decided, on their advice, to wait until the following day.

Remarkable Cases proving connection with the Milk.—Next morning's post (5th inst.) brought several notifications of Scarlet Fever in fresh households supplied from the same dairy, and, among others, five cases in the practice of Dr. Scotland, who supplied the following information, showing a remarkable association between the disease and the milk. Three of the five patients (two of whom live together, and the third, a girl, lives in a different locality) regularly take the milk in question. The other two (boys), with their sister, on Saturday, June 30th, visited at the house of the girl above-named, who was then quite well, and stayed to the afternoon meal, at which the girl and the two boys drank milk. They all sickened, and on Tuesday, July 3rd, developed the eruption of Scarlet Fever. The boys' sister, who at that meal took tea, remained well.

In each of the infected households above referred to the servants had also Sore Throats. On the same day another instance, in the practice of

Dr. P. H. Watson, was reported, in which a gentleman had taken milk at the house of a friend who was supplied by Mr. Dodgson. The gentleman fell ill of Scarlet Fever on or about July 1st. One of the children and two of the servants of the friend at whose house he partook of the milk, sickened with the same disease on July 2nd.*

A further noteworthy example, showing the connexion between the milk supply and the illness of its consumers, which came to my knowledge at a later date, may be mentioned here. Dr. Galbraith, writing to me on the 9th July, says:—

“On making fuller inquiries into a case of Scarlatina, who was not supposed to be getting Dodgson’s milk, I find that they got a little from Dodgson, but the most from . And what seems interesting is that the little girl who has the fever partook mostly of Dodgson’s milk, whilst the other two of the family who drank little of the milk have escaped. It is only fair to state that the mother called at a house where Scarlatina was, and talked with the lady at the door.”

The Milk Supply stopped.—On becoming aware of the facts on the morning of the 5th inst., I at once called on the Chairman of the Sanitary Committee and the Town Clerk, and directly afterwards sent a cab and messenger to Gosforth for the dairyman, who came to the Town Hall, and in the presence of the gentlemen before named and myself, was informed of the particulars. During the interview the mid-day notifications arrived by post, and showed on comparison with the milk list a further increase of cases of Scarlet Fever among the dairy customers. On the very serious nature of the matter being put before Mr. Dodgson, he, on our advice, agreed forthwith to discontinue the sale of his milk until he had my authority to resume it. He was also advised not to give the milk away, but to empty it down the drains for the present.

Second visit to the Dairy.—On the 6th inst. the Chairman of the Sanitary Committee, Inspector Hedley, and myself met, by appointment, Dr. Galbraith and Mr. Dodgson, at the house of the latter, who stated that he had discontinued the supply of milk to his Newcastle customers, as promised,† and that the milk had been emptied down the drain. He said also that he had bought a recently-calved cow on Saturday last, and that her milk was mixed with the rest on the afternoon of that day and afterwards.‡ He has not had any other calvers for some months. He

* The two servants were removed to the Fever Hospital, where one developed a severe attack of Scarlet Fever; the other (who states she passed through Scarlet Fever when a child) suffered from ulceration of the tonsils without skin rash, but followed by desquamation.

† The supply to the Gosforth customers was also discontinued.

‡ It was afterwards ascertained that this cow had calved on June 22nd. There is no suspicion of any ailment of this animal.

bought two other fresh cows about six weeks ago. All have kept well. The daily yield of milk at the dairy is from 50 to 60 gallons. Small quantities of milk have occasionally been bought from, and sold to, other dealers during the past fortnight.*

Mr. Dodgson also made a statement with reference to a report that one of the cases of Scarlet Fever on his milk list had received infection through a visitor from an infected house, which I afterwards inquired into and found to be incorrect.

We then visited the field in which the cows were kept during the day and found the Company's water laid on to troughs. On the side of the road between the field and the dairy is a pool of stagnant water, to which the cattle have access, and from which we advised the dairyman to see that they were kept, which he promised should be done.

Health of the Milk Consumers in Gosforth.—At the above interview Dr. Galbraith stated that he had visited all of the customers of the dairy living in Gosforth, except four, two of whom are from home. In one house a little girl "looked suspicious of having had Scarlatina last week," but had not been under medical advice. A young man in the same family has Tonsillitis, with a red rash on the throat. In another house "a child has a slight reddish patch on the left tonsil, which is enlarged." Up to date there was no other case of Scarlet Fever or questionable ailment among the customers visited by Dr. Galbraith.

In a letter dated 12th inst., Dr. Galbraith reported the total cases in the particular dairy custom observed by him as being 1 of Scarlet Fever and 4 of Sore Throat, each case being in a different family or house. The total number of households in Gosforth supplied with the milk in question is 26.

Concurrent Sore Throat in the Dairy Custom in Newcastle.—Up to this date (6th), in the course of the investigation, a considerable number of cases of Sore Throat, etc., in the households of persons affected with Scarlet Fever, had come under notice. Three such under the care of Dr. Lownds were notified by him as Diphtheria, as were two others in a different family, in which Scarlet Fever was not reported, and who had used this particular milk.

Desirous of ascertaining the extent of this prevalence of affections of the throat, I addressed a circular to the medical practitioners who had notified cases of Scarlet Fever among the consumers of this particular milk supply, asking for particulars in their practice of such cases as regards :—

* No case of Scarlet Fever reported during the fortnight was supplied with milk by any of these.

1.—The number of cases of Sore Throat or other throat ailment, without skin eruption, occurring in houses along with cases of Scarlet Fever.

2.—The same as regards households in which there has been no Scarlet Fever recently.

3.—The name, age, and address of each case of the foregoing.

4.—The date of the first appearance of ailment.

5.—Observations on the appearance of the throat, tonsils, etc.

6.—Whether the persons affected had drunk milk alone (either cooked or uncooked), or merely took it with tea or coffee.

In response to this circular and otherwise I received replies from Drs. Scotland, Lownds, H. W. Newton, Gibb, Oliver, Hawthorn, Hume, Farquharson, J. Brown, P. H. Watson, Kennedy, and Beatley, respecting the cases under their care. Several of the cases, both of Scarlet Fever and Sore Throat, came under my own observation in the Newcastle Fever Hospital. Believing that there would probably be other persons with Sore Throat in the dairy custom who, on account of the mildness of their attacks, might not have taken medical advice, I caused inquiry to be made by the Inspectors at the houses of the customers in Newcastle where Scarlet Fever had not already been notified, 114 in number, with the result of ascertaining that in a large proportion of these one or more of the residents had recently developed Sore Throat.

In one of the families reported as having Sore Throats, I found three children suffering from unmistakeable Scarlet Fever. Two of them were desquamating, and the third had acute rheumatism of the large joints. The first case dated from July 1st, and a scarlet rash appeared next day. The others fell ill on the 3rd. All had enlarged tonsils.

Feeling the importance of having the other cases of reported Sore Throat inquired fully into, and being myself unable to find time for this purpose, I asked Dr. G. W. Ridley, Resident Medical Officer of the Newcastle Dispensary, to undertake this duty, and he kindly did so.

The information obtained from the various sources above named may be summarised as follows:—

Dr. Hume reports 3 cases of Scarlet Fever and 4 of Sore Throat without skin eruption, in the same family. In the cases of Sore Throat only, the appearances were—scarlet flush over the fauces, swelling of the tonsils, and small aphthous ulcers. In other households using the same milk Dr. Hume noticed cases of Sore Throat of precisely the same character. Several of the cases under other medical care had the appear-

ance of simple Sore Throat, Tonsillitis, Ulceration of Tonsils, Palate, etc. Some of these, including three admitted to the Fever Hospital, were followed by peeling of the skin.

Dr. Farquharson reports a family of three persons, the first of whom began to feel ill with Sore Throat on July 2nd, the tonsils became highly inflamed, and the glands of the neck were enlarged. There was no eruption on the skin, but desquamation appeared afterwards. A second case of Sore Throat with implication of the glands of the neck in this family began on the 3rd inst., and recovered in a few days. The third case in the family was a typical one of Scarlet Fever.

Dr. Scotland, who notified 6 cases of Scarlet Fever in four households, in each of which there were cases of Sore Throat, reported also 6 cases of Sore Throat in other households, in which *ordinary* Scarlet Fever did not appear. He describes the symptoms of the throat cases as ranging from slight to moderate, smart, and severe.

Dr. Oliver, writing of 2 cases of Sore Throat under his observation, says, "In my own mind both of these have been Scarlet Fever, but what proof have I?"*

Dr. Lownds notified 3 cases of Scarlet Fever and 2 cases of Diphtheria in the same family, patchy deposits being observed in all of the cases—the principal point of difference between one set of cases and the other being the presence or otherwise of scarlet rash on the skin. The same observer also reported similar cases of throat ailment in another family, which he regarded as Diphtheritic. All of these are considered as in connexion with the Scarlet Fever outbreak.

Dr. Ridley furnishes detailed information respecting a large number of cases of Sore Throat. Of 19 in which the date of first ailment was fixed—8 began on July 2nd. Some of the cases were slight and of short duration. In 9 there was redness of fauces, uvula, or palate; in two instances there were 2 cases, and in two others 3 cases, in the same family. In one of the latter families, one of the cases was said to be chronic; another was attributed to a wetting; and the third was regarded as "very suspicious." In 8 cases examined by Dr. Ridley the tonsils were enlarged, inflamed, or ulcerated; in 3 the lymphatic glands at the angle of the jaw were implicated. In 1 there was distinct history of a rash, and in 1 there was desquamation.

The milk was consumed uncooked in a large proportion of the cases about which information on this point was obtained.

* These cases were afterwards pronounced to be Scarlet Fever.

The Nature of the Sore Throats.—On considering the foregoing descriptions by the different observers, it is apparent that there was a considerable range in degree of severity of attacks. The accounts of the several cases, including those under my own notice, correspond exactly with the throat appearances of the children of the dairy-helper Rutter, at Gosforth. Every one of the signs and appearances of the throat without skin-rash above mentioned are such as are commonly met with in typical cases of Scarlet Fever. There are numbers of instances of this in the outbreak under report. Different members of a family have also had the same form of Sore Throat—some with rash and some without. From all I have seen and gathered from the medical practitioners concerned, I have no hesitation in stating that the disease from which the children of the dairyman Rutter have been suffering is the same as that from which the consumers of the milk have suffered. The strictest inquiry has failed to elicit that there was any appearance of eruption on the skin of Rutter's children. If it was possible for these children to undergo, unknown to their parents, the Sore Throats from which they suffered, it might well happen that the additional sign of a faint skin-rash may have passed unobserved. But the absence of the rash in these cases only makes them correspond more closely to a large proportion of the cases in the dairy custom, which are directly allied to others of undoubted Scarlet Fever.

There is nothing new in the idea of Scarlet Fever without eruption. It is one of the acknowledged varieties of this disease. It may easily be recognised when occurring in families along with ordinary cases. The difficulty is to distinguish it from Sore Throats of entirely different character, when occurring by itself, and unassociated with the normal form.

There can be no doubt of the importance of excluding from every possibility of infection all milk intended for sale. Hence, in relation to dairy management, every case of Sore Throat, no matter how simple it may appear, should be *regarded as suspicious and treated as infectious*.

EXTENT OF THE OUTBREAK IN NEWCASTLE.

Time.—Special attention was first called to the cases of Scarlet Fever notified, as already stated, on Monday, July 2nd. The date of the first appearance of ailment in the last of the houses in the milk custom that were invaded is July 8th. Fresh cases in households previously affected have been notified up to the 14th inst. Altogether the cases that have come under notice to the last-named date (14th) among the consumers of Mr. Dodgson's milk, are as follows :—

		Cases.	Households.
Scarlet Fever notified	... ... ... ...	61	34
Diphtheria notified	... ... ... ...	5	2
Sore Throat in households notified as being infected with Scarlet Fever or Diphtheria	} }	11	—
Sore Throat among the Consumers of Milk in question, in households not notified as being infected with Scarlet Fever		39	27
Total	... ... ... ...	116	63

As showing the relation between the outbreak and its cause, the condition of matters is as follows :—

*Scarlet Fever notified to date (14th July) among the consumers of Mr. Dodgson's milk	... ... ...	61
Diphtheria	do.	5
		— 66
Other cases of Scarlet Fever and Diphtheria notified in the City, week ended 7th July	... ... ...	13
Do. do. 14th July	... ... ...	19
		— 32
		— 98

Resumption of the Dairy Business.—On the 12th inst. Mr. Dodgson called to know if he might resume the supply of milk in the City. As already stated, the date of the last invasion of a fresh household in his custom is July 8th. Being fully of opinion that in cutting off all connexion between the household of the cowman Rutter and the dairy a week ago, (which I was given to understand had been done), the spread of infection to the milk was then stopped, I saw no reason why the supply should not now be begun again. As this view was shared by the Chairman and the Town Clerk, no objection was made to Mr. Dodgson returning to his business, on the express stipulation that on no account was there to be any communication between the dairy business and Rutter or his household until my sanction was obtained.

Area of Incidence of Disease.—The map submitted herewith shows the area over which the cases were spread to have been extended—on the west, to St. Thomas' Square, Lax's Gardens, and Clayton Park Square; on the north, to Sanderson Road and Moor View; on the east, to Osborne Avenue (east end), Portland Road, Sarah and Union Streets (Shieldfield);

* Prior to the 2nd inst. no case had been notified in the custom of the dairy.

and on the south, to New Bridge Street, the upper part of Pilgrim Street and Hood Street. Roughly speaking, there are as many cases south of Jesmond Road as north of it. *This is the Area of the Milk Supply.* 10 cases of Scarlet Fever and 3 of Diphtheria in this area, in households supplied with milk from other dairies, have been notified during the fortnight ended 14th inst.

Details of the Dairy Custom in relation to the Outbreak.—The dairyman supplies 147 households in the area. Of 86 of the houses to which the milk is delivered by himself, 15 have been notified as infected with Scarlet Fever or Diphtheria; and of 61 houses served by his son, 18 have been similarly invaded. In addition to the foregoing, the dairyman partly supplies a small retailer, one of whose customers has had Scarlet Fever. Counting the diseases above-named, and Sore Throat, altogether 63 households, or nearly 43 per cent. of the entire number supplied with this particular milk, have been invaded in this outbreak of disease.

Type of the Cases, etc.—Hitherto there has been no mortality in connexion with the outbreak.* Several of the cases have been severe. 10 of the patients were removed to Hospital, of which 5 were suffering from Scarlet Fever with distinct rash, 1 having the disease in a severe form; the remaining 5 had Sore Throats without any visible eruption. 3 of these desquamated freely. One of the last mentioned, a domestic servant from a house where there were cases of Scarlet Fever, had had that disease in her infancy. She had a rather severely ulcerated throat, and her skin is now peeling freely.

Repeated Attacks of Scarlet Fever.—In addition to the last mentioned, 4 of the cases of Scarlet Fever are reported in patients who are stated to have previously passed through the disease. Dr. Scotland reports 2 of these cases, one being that of a patient who had Scarlet Fever 24 years ago. The other is that of a boy whom he himself attended for Scarlet Fever only about half a year ago. I was afforded the opportunity of seeing this patient and his brother, who each had a somewhat mild attack of Scarlet Fever, attended with a copious red rash and other symptoms as to the identity of which there could be no mistake.

Dr. Farquharson reported a case of Scarlet Fever, which was stated to be the third attack in four years.

Dr. Lownds also reported a case of Sore Throat in a household infected with Scarlet Fever, the patient having passed through Scarlet Fever two years ago.

* Since the above was written, one of the patients has died.

Date of Attack.—With the view of throwing light on the origin of the outbreak, as much information as possible has been collected as to the dates on which the patients first began to feel unwell. The following is a summary of the particulars of 70 cases about which we have been able to gather definite information :—

SUMMARY OF DATES OF FIRST FEELING OF ILLNESS.

Disease.	June 29th.	June 30th.	July 1st.	July 2nd.	July 3rd.	July 4th.	July 5th.	July 6th.	July 7th.	July 8th.	July 9th.	Total.
SCARLET FEVER ...	3	4	8	13	8	1	2	...	...	2	...	41
SORE THROATS ...	3	2	6	6	5	1	1	1	...	...	2	27
DIPHTHERIA... ...	...	...	2	...	...	...	...	...	...	...	...	2
Total	6	6	16	19	13	2	3	1	...	2	2	70

From this Table it appears that 48, or 68 per cent., of the cases referred to began to feel unwell on one or other of the first three days of the present month. Above 70 per cent. of the Scarlet Fever cases date their first ailment from the same time.

In the case reported by Dr. Scotland, as already stated, there is reason to believe that three children who fell ill on July 3rd were infected by milk from the same delivery which they consumed on June 30th. Whether this milk was consumed on the date of delivery in this and other instances cannot be ascertained. It is not probable, however, that in any instance it would be kept more than a day at this time of year. It may be that only one yield of milk was infected, and that its effect on the various consumers began to show on different dates, according to the quantity taken of that particular yield, or the circumstance of its being raw or cooked, fresh or old, etc. In one household where there were 3 cases of ailment (1 of Scarlet Fever and 2 of Sore Throat), beginning respectively on the 2nd, 3rd, and 6th inst., Dr. Farquharson states that "on June 27th the first of these patients had taken about half a pint of soured milk, that is, milk which had been standing since the previous day." The case was one of severe Tonsillitis, the gravity of which may, he suggests, be accounted for by the multiplication of the virus in milk undergoing acid fermentation. Personal idiosyncracy, *e.g.*, a previous

attack (as in the last of the three cases just mentioned), or special susceptibility, might protract the period of incubation in one instance or shorten it in another.

Hence we are unable to come to any definite conclusion as to whether the mischief was done by one delivery of the milk or by several. Rutter states that his children have sometimes come about the cowhouses, but does not admit that they have ever done so lately.

THE CAUSE OF THE OUTBREAK.

There is no doubt whatever in my mind that the outbreak of disease under report was disseminated by means of milk. I am also of opinion that the milk in question received infection after leaving the cow, and that such infection came, directly or indirectly, from the children of the cowman Rutter.

It is, therefore, unnecessary for me to state that the occurrence of the disease was in no instance to my knowledge due to structural sanitary defect.

In weighing evidence relating to outbreaks of disease such as that under consideration, it must be remembered that proof absolute of the cause is never possible. In the case of a murderous assault a witness may testify to the deed; or the bullet found in the body may correspond with those in the possession of the assassin; and so the fact may be established beyond question. But in the case of an attack of Scarlet Fever the bullets are invisible. The milkman's cans may be loaded with them, but no man is able to say he saw them put in; and though discharged with fatal havoc among the customers, their presence cannot, except by inference, be proved either at the dairy or in the dead.

It is not unfrequently urged that because all, or at least the majority, of the drinkers of the indicted milk in an epidemic are not infected, therefore that fluid cannot be to blame. It is about as logical to argue that because a sportsman does not bring down the greater part of a covey at a shot, he did not hit the bird that falls to his gun. If there is one thing more probable than another about the contagium of such diseases as this under report, it is that such contagium is *particulate*—*i.e.*, that it consists of particles, invisible though they may be. Such particles may be few in number, and during the quiescence of the medium in which they are suspended, they probably settle downwards. Consequently in the case of milk, it is natural to suppose that if there are only one or two

of such particles in a canful, a large part of the contents will be quite free from them and fit to drink.

On the present occasion it is scarcely probable that any line of defence like the above will be attempted. The fallacy of the argument is here exposed because it was set up on a recent occasion, and will doubtless be so again.

Lessons.—A serious outbreak of disease, such as Newcastle has just now experienced, should not be without its teachings to everyone concerned. It shows how much the health of the most careful and steady-living families may be literally in the hands of their milkman, and how important it is to be able, on the slightest suspicion of danger, to stop him from going his rounds. In matters of this kind *promptitude of action is everything*. To wait for proof may mean death. But to prohibit promptly the sale of infected milk, without incurring liability to action for damages may be, and in ninety-nine cases out of a hundred, perhaps is, beyond our power, because we cannot prove infection by any known means, other than that of its effect on the consumer. In the case of infected articles of clothing,—which at the worst are only likely to be dangerous to a small number of persons coming in contact with them,—although there can be no absolute proof of their condition, yet in a court of law the infection is frequently sworn to and held as proved. Is it not much more important in cases like the present, whenever there is good reason to suspect that disease is being, and may be, spread broadcast by milk, that the Sanitary Authority, on the opinion of their Medical Officer of Health, should have power to prevent danger by stopping the milk supply summarily, until it is known that there is no danger?

There should also be power to compensate for loss incurred by stoppage of business.

On the present occasion Mr. Dodgson very properly discontinued his business as soon as the danger was pointed out to him. But suppose that, instead of the children ailing, one of the milkers had had a Scarlatinal Sore Throat, rendering her a source of continued infection of the milk; and that the dairyman had declined to admit that there was any risk, and would not have his business interfered with. What could I have done? There is certainly power to demand a list of customers, and these might have been put on their guard, but not till much mischief might have happened.

It is of great importance to the public health to have power to deal thoroughly with these matters. It is also desirable that the general

sanitary condition of dairies situated outside of the city, but supplying milk to the citizens, should be in some degree under civic control. At least the citizens should have some guarantee of security, *e.g.*, against the risk of contamination or infection of the milk at all times. Dairy-workers should be compelled to report to their employers all infectious and suspicious ailments in their households; and dairymen should be compelled to take proper precautions. But how can they, without special education in such matters, be expected to appreciate the many delicate points relating to contagium and its communicability, which are but imperfectly grasped even by scientific experts? They should therefore be made aware of the great hygienic importance of every detail of their business.

For my own part, the experience of the recent outbreak has taught me to be more suspicious than before of what appear to be trivial ailments in persons connected with dairies. In a report on an outbreak of Scarlet Fever at the beginning of the present year, I stated that one of the household servants at the dairy, but who was understood not to be in any way engaged in the dairy business, had Tonsillitis, which I fully believed to be non-specific. Were that case to decide now, I doubt whether I should express the same opinion. Under any circumstances I should advise her removal from the dairy premises.

I have to express my belief that Mr. Dodgson is not in any way to blame in this matter. To the best of my knowledge he has been straightforward and open throughout. He at once discontinued the supply of the milk when advised to do so, and did not begin it again until authorised.

My acknowledgments are due to the different medical practitioners concerned for the valuable aid they have courteously rendered in the inquiry.

HENRY E. ARMSTRONG.

MEDICAL OFFICER OF HEALTH.

*Health Department,
Town Hall,
16th July, 1888.*

A P P E N D I X D.

City and County of Newcastle-upon-Tyne.

R E P O R T

ON THE

CITY HOSPITAL FOR INFECTIOUS DISEASES

BY THE

MEDICAL OFFICER OF HEALTH.

SEPTEMBER, 1888.

Newcastle-upon-Tyne :
ANDREW REID, PRINTING COURT BUILDINGS, AKENSIDE HILL.

1888.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

REPORT

ON THE

City Hospital for Infectious Diseases.

FROM very early times it was customary to make no permanent provision for the isolation of the infectious sick. Plague followed plague, and epidemic epidemic in rapid succession for century after century without teaching the people the great truth, that with contagion, as with other foes, to be “forewarned is to be forearmed.” As the result, when the evil day came, disease finding men unprepared, spread desolation broadcast, and drove them in panic and desperation to resort to measures of self-protection, from which, at this day, we would shrink in dismay or horror. Among the least of these was the compulsory removal of the sick from their dwellings, not to a commodious hospital, but to any open space at a distance, where they would be less likely to infect others. In the plague records of Newcastle 300 years ago, we read of “seke-folkes both afielde and in town.”* Some were taken beyond the walls, to the Warden’s Close, Spital Tongues, the ancient quarries at Arthur’s Hill, and other places, where they lay in camps or huts. Some had their doors sparred up, and their food handed through the windows. Sometimes they were received into churches and charitable houses in the town. The Trinity House threw open its guest chamber for this hospitable purpose.

Up to the close of last century there was no separate hospital for infectious diseases in Newcastle. Even in London measures for forming such an institution were not taken until 1801. For some time before this date three other English towns had accommodation of this sort, though to a very limited extent. In 1784 Chester provided two

* “Plague and Pestilence in the North of England,” by G. Bouchier Richardson, 1852.

fever wards, one for each sex, in the Chester Infirmary. In 1786 Liverpool did the same (20 beds in all) at its Workhouse. In 1796 fever wards for town cases were opened by the Governors of the Manchester Infirmary, within the precincts of the charity. In 1801 an appendage was added to the Newcastle Infirmary, three wards of which (containing 18 beds) separated by a brick wall from the rest, were intended for a fever house for the town ; but, owing to the opposition raised to the scheme, were never used as such. They were built chiefly through the advocacy of Dr. John Clark, one of the physicians to the Infirmary, and a principal originator of the Newcastle Dispensary. Before this the Infirmary had a "room" for fever cases occurring among the inmates of the institution. In the same year a Military Hospital was opened in a house in Vine Lane, one room of which was similarly reserved.

The accommodation for fever in each of these instances formed part of a larger general hospital, and, judging from the number of wards, it was intended chiefly for "Typhus and Continued Fever," the only separation among which would be that of sex.

As early as 1793, a proposal to erect a Fever Hospital had been made to the Governors of the Dispensary by Dr. Ramsay. The attempt to open the fever wards attached to the Infirmary was strongly opposed by Dr. Wood and others, who were in favour of a separate Fever Hospital. A keen controversy arose, in which, notwithstanding letters from authorities so renowned as Haygarth, Gregory, Heysham, Beddoes, Blane, Willan, Lettssom, Lind, and a host of others, adduced by Dr. Clark in support of his scheme, Dr. Wood gained the day, and Dr. Ramsay's proposal bore fruit, in the establishment, in 1804, at Bath Lane, of the "Institution for the Cure and Prevention of Contagious Fevers," which, so far as the writer of this Report is aware, was the first Fever Hospital in the provinces built and worked on an independent basis. It has lasted to the present time. The site of this hospital is, curiously enough, the same Warden's Close outside the town wall in which the infected sick used to encamp long ago. The Hospital was part of a comprehensive plan for the prevention of infectious disease in the district, which does honour to its promoters, and would be highly creditable even as the work of the present day. It embraced (1) the institution of a Board of Health ; (2) the circulation among the poor of an excellent list of printed instructions for preserving health and to guard them against fevers ; (3) the establishment of a "House of Recovery," under the care of the physicians of the Dispensary ; (4) the provision of a stock of bedclothes and apparel for loan or gift to the necessitous during convalescence ; (5) the keeping

of a sedan chair, with a movable linen lining, to convey patients to hospital; (6) the appointment of a medical inspector "to see the rules of prevention carried into execution, and also to make an early discovery of any poor person who may labour under a contagious fever, Small-pox, the Scarlet Fever, etc.; and he should be authorised to give a moderate reward to any person who may bring certain intelligence when any of these diseases have appeared in a poor family;";* (7) the engagement of an officer to remove patients, and carry out purification of dwellings, etc.

Several of these valuable proposals (though not all) were carried into effect. For one, the House of Recovery, or Hospital, was erected by public subscription. It is a three storey building, the ground floor being the Administrative Department, and the upper floors being devoted to the accommodation of patients and nurses. There were originally seven wards, containing 36 beds.†

Owing to the pressing need for more accommodation this Hospital was, in 1870, supplemented by a wooden building, originally built by the Corporation on the Town Moor for a Cholera Hospital, but afterwards removed at the expense of the Guardians to the Hospital grounds in Bath Lane. It contained 24 beds. About the same time a Home at Byker Hill was opened by the Guardians, for the reception of Small-pox convalescents from Bath Lane Hospital. The Home was, in course of time, transferred to the Corporation.

About the year 1866, an old chapel in Forster Street was temporarily used as a Hospital for Scarlet Fever during an outbreak of that disease in the Ragged School.

In 1873, the Fever Hospital at Bath Lane was handed over to the Corporation. Prior to that date it had been under the management of a body of governors, and was maintained, partly by subscription, but principally by charge for maintenance of patients. In 1882, the Corporation erected on the Town Moor a wooden Hospital of 24 beds for Small-pox cases, and closed the wooden block in Bath Lane.

The Hospital accommodation above described has proved inadequate, as the various reports of the Fever Hospital prior to its transfer, and subsequently those of the Medical Officer of Health,‡ shew. Owing to faulty arrangement of wards, patients whilst in Hospital have on various

* "A Collection of Papers intended to promote an Institution for the Cure and Prevention of Infectious Fevers, in Newcastle and other populous Towns." By John Clark, M.D., Newcastle. 1802; p. 31.

† One of the small wards was afterwards taken for a nurses' room.

‡ Notably those for 1878, 1879, 1881, 1882, 1883, and 1886.

occasions contracted other infectious diseases. The nurses, also, have suffered very heavily from Typhus. From the limited number of wards, it has frequently been impossible to provide a room for each disease and sex seeking admission, and, in consequence, cases have been refused, and others have been of necessity discharged at too early a date to make room. The isolation of Scarlet Fever in the Hospital—even of a single case—has often been quite impracticable; and owing to the want of sufficient beds, has never been possible to any degree commensurate with the number of cases occurring within the town, especially in tenemented dwellings. The wards have often been seriously overcrowded. The accommodation for nurses is defective, their sleeping rooms being between the wards.

These defects, and how best to remedy them, began to engage the attention of the Sanitary Committee soon after the Hospital came into the hands of the Corporation in 1873. The matter was first brought before the Council in 1880, when Mr. Alderman Thomas Wilson, then Chairman of the Sanitary Committee, presented and moved the confirmation of a report, shewing the necessity of providing better accommodation for this purpose, and submitting a plan for the erection of a new Administrative Department, together with a Ward Block of two storeys, on the site of the present Fever Hospital and a portion of the adjacent land belonging to the Corporation, at a total estimated cost of £5,233. Before confirming this report, the Council resolved to advertise for a different site on which to build. This was done freely, but without producing a response. In accordance with the instructions of the Council, the Medical Officer of Health then prepared a report (dated 31st December, 1880) on the only sites available, viz.:—(1) That at Bath Lane, on which the old Fever Hospital now stands, together with the small plot of additional ground; and (2) that on the land belonging to the Corporation at Byker Hill, on which stands the old Small-pox Convalescent Home.*

In March, 1881, Alderman Wilson presented to the Council a report of his Committee, embodying one by the Medical Officer of Health, together with a letter from Dr. R. Thorne Thorne, Medical Inspector of the Local Government Board. The report shewed that the efforts of the Committee to obtain a suitable site had been unsuccessful, and recommended the erection of a new Hospital on the present ground at Bath Lane. The proposal was strongly opposed by deputations to the Council, representing owners and occupiers of property in the neighbourhood, and

* Extract from "Annual Report of the Medical Officer of Health" for 1880.

by memorials from teachers, parents, and guardians, of pupils in Bath Lane Schools, and from medical men. On account of this opposition the Committee renewed their inquiries, and in October the Chairman reported to the Council in favour of the ground and house at "Moor Lodge," Spital Tongues, together with a field adjoining, comprising a total area of about ten acres, as a suitable alternative site on which to build. This proposition was also opposed by owners and ratepayers at Spital Tongues, whereon the subject was again referred to the Committee.*

In 1882 the question of a new Sanitary Hospital for the City was before the Council at no less than eight different meetings, and was fully discussed. The memorial opposing the proposed site at Moor Lodge was supplemented by a letter from the War Authorities objecting to the erection of a Hospital for Infectious Diseases near the Barracks. After further opposition and continued consideration this site was abandoned. The question of building a Hospital on other sites was referred to the Committee.

In 1883 the Council confirmed a report of the Committee, submitted by Ald. Wilson, recommending the preparation of plans and estimates for the erection of a Hospital on ten acres of the Corporation Estate at Heaton. On this the Committee instructed the Medical Officer of Health to prepare a Memorandum on the Requirements of the Proposed Hospital, which was prepared and approved.† In October, Ald. Wilson presented a report, stating that the Committee had, by advertisement, invited competitive plans under the usual conditions, by which competing architects are not known until the competition is over. 23 sets of plans were sent in, all of which were publicly exhibited in the Guildhall. Mr. Thos. Worthington, Consulting Architect, Manchester, was engaged as assessor.

The design to which the first place was awarded by the assessor was that bearing a red cross, which the Committee reported to be that of Mr. Arthur B. Gibson, Architect, Newcastle. This report, with the addition of the words, "but no building will be constructed or used for the reception of Small-pox patients on the Heaton site without the previous consent of the Council," was confirmed.

In 1884, owing to the opposition to this site, the Council ultimately fixed on one similar in area on the land belonging to the Corporation to the north of the Tynemouth Railway and near Walker Station, and a

* Extract from "Annual Report of Medical Officer of Health" for 1881.

† Copy given in the "Annual Report of the Medical Officer of Health" for 1883, p. 46.

Local Government Board Inquiry was held respecting the loan of £16,000 for the erection of the Hospital thereon.

In April, 1885, Ald. Wilson presented to the Council a report of the Sanitary Committee embodying a communication from the Local Government Board proposing certain alterations in the plans* and involving increased expenditure. The report recommended the Council to apply for the loan of £20,000, instead of £16,000 as originally applied for. The report was confirmed. In the same year a contract was sealed with Mr. J. E. Middlemiss for the erection of the Hospital at a contract price of £17,887, and the building was begun.

Up to this point the various projects of the Sanitary Committee for improved Hospital accommodation had been brought before the Council by their then Chairman, Ald. Wilson, to whose broad views, firm support, and untiring perseverance, the scheme ultimately adopted largely owes its success. The charge of seeing the actual work carried out to completion was entrusted to a Sub-Committee, at first under the same President. On Ald. Wilson's resignation of the chair of the Sanitary Committee, after a long and honourable tenure of office, his duties and responsibilities, including those relating to the Hospital, devolved on his successor, Mr. Councillor T. B. Winter, who has shewn a warm interest in the work, and has taken an active part in every stage of its progress. The members of the Hospital Sub-Committee are :—

Alderman R. CAIL.	Councillor HUGH MORTON.†
„ W. OWEN.	„ T. B. SANDERSON.
„ C. S. SMITH.	„ E. STOUT (<i>Vice-Chair-</i>
„ T. WILSON (<i>ex-Chair-</i>	<i>man</i>).†
<i>man</i>).	„ W. SUTTON.†
Councillor J. BIRKETT.	„ A. WILSON.†
„ A. CARSE.†	„ T. B. WINTER (<i>Chair-</i>
„ Jos. B. ELLIS (<i>Sheriff</i>).†	<i>man</i>).†

* See "Council Proceedings," 1st April, 1885.

† Are also members of the Furnishing Sub-Committee.

The following is a description of the City Hospital for Infectious Diseases as completed:—*

The Hospital is situated in the township of Walker, and is distant from the centre of the town about three miles. It is within three minutes' walk of the Walker Station on the Tynemouth line of railway.

Site.—The site, which belongs to the Corporation, is bounded on the east side by a public road, and on the three other sides by open fields. The site contains about 11 acres of land, surrounded by a wall 6 ft. 6 in. high, and is, practically speaking, level.

Drains.—The drains have been constructed to the approval of Mr. W. G. Laws, City Engineer. They are laid throughout on the rectangular system, with inspection manholes at all the angles. Great care has been taken in providing means of flushing the entire system of drainage, and in all cases the sewage sent from pavilions, Patients' Laundry, etc., will be disinfected before entering the drains. The drainage system of the Administrative Block, Lodge, etc., is separate from that of the wards and infected portions of the Hospital.

General Arrangement.—The Hospital is built on the single storey pavilion system. It will accommodate, in the first instance, 105 patients in five separate pavilions—viz., three pavilions of 22 beds each, one pavilion of 33 beds for scarlet fever, and one isolation pavilion of 6 beds for undeveloped or special cases. The other buildings consist of Entrance Lodge, Administrative Block, Patients' Laundry, Disinfecting Block, Stables, and Mortuary. Ground is provided for future extension of two additional pavilions. Further details of general arrangement are given on the ground plan accompanying this report.

Wards.—The main pavilions are identical in plan. They are connected with the Administrative Block by open covered corridors. Each pavilion is called by an alphabetical letter, and has its own distinctive crockery, linen, etc. Each has a covered ambulance approach. On the left of the entrance is the receiving and discharging rooms, with means for bathing the patients on their arrival and discharge. Next to this room is the ward scullery, in which is stored all the crockery and hardware of the pavilion. It is fitted with glazed earthenware sinks and enamelled slate slabs for washing up, scrubbing, and cleaning, with supply of hot and cold water and provision for cleaning and filling footwarmers.

On the right of the entrance is a covered yard, with separate w.c. for nurses, and coal house. In this yard will be kept the movable receptacles for foul linen, dust, etc., for daily removal. These offices are disconnected from the wards by a cross ventilated lobby leading into the ward hall, in which are placed presses for linen, blankets, and patients' out-door clothing.

The pavilions contain 22 beds, 11 for each sex. The beds are placed in two large wards for 10 beds each, one single-bed ward for special cases being attached to each large ward. The male and female portions are separated by the nurses' duty-room, and the wards are so arranged that the nurse from her duty-room can overlook the 22 beds in the pavilion. The w.c.'s, lavatories, baths, urinals, and slops-closets are placed in cross ventilated offshoots at each end of the pavilion. The apparatus in these annexes is all of the most approved sanitary description. The w.c.'s and

* The writer is indebted for this information to the Architect.

baths are fitted without enclosing wood-work, so as to prevent any accumulation of dust. The baths stand in the centre of the bath-rooms for convenient assistance to the patients. The cistern of each w.c. is furnished with an Austin's porous cell filled with disinfectant and continually in action.

Heating.—The wards are provided with Douglas-Galton's stoves, with gill warmers, the smoke flues being carried in pipes up the centre of large extraction shafts. In addition to the open fires the wards are heated by steam pipes supplied from the large boilers in the laundry block. These steam pipes, protected by wire netting, are carried round all wards and offshoots.

Ventilation.—The means of ventilation are ample. The windows reach within twelve inches of the ceiling. They are divided into three sections, of which the two lower are hung as sashes and made to open at top and bottom. The topmost portion is made to fall back into a glazed hopper, and is fitted with patent apparatus for adjustment, so as to admit the exact amount of air required. Hit-and-miss gratings are provided to admit air under the beds on the floor level. Tobin tubes are also provided in all w.c.'s, lavatories, bath-rooms, etc. Provision has also been made for the free extraction of the vitiated air both by means of Boyle's air pump ventilators and specially warmed extraction shafts.

Gas.—The wards are lighted artificially by ventilated gas lights, the products of combustion being carried directly out into the open air.

Venetian Blinds.—The windows throughout are supplied with varnished pine Venetian blinds. The lower portion of each window is furnished with a window guard of strong painted wire, which serves both as a screen from the outside and a protection against accidents from within.

Walls.—The walls of wards throughout are finished to a height of 8 feet from the floor with polished Parian cement, with pale sage green colouring matter mixed in so as to make a permanent non-absorbent highly-polished surface requiring no painting. The whole of the interior of the wards is finished without mouldings or cornices, the angles throughout are rounded off, and the doors have flush panels, so as to avoid all accumulations of dust.

Floors.—The floors are of selected polished pitch pine, laid in narrow widths, and secret nailed.

Scarlet Fever Pavilion.—This pavilion is the same in plan and arrangement as the others, except that it has 33 cots and beds instead of 22.

Isolation Pavilion.—The isolation pavilion is built in two portions, for the treatment of two different diseases, and is so arranged as to prevent the possibility of one class of patients coming in contact with the other. Each portion consists of two wards separated by a nurses' duty-room, and containing respectively one and two beds. The nurses' duty-rooms are fitted with small cooking ranges, sinks, etc. The w.c.'s and Hospital sinks are placed in offshots opening out of a glazed corridor. A portable bath for each half of the pavilion is kept in a covered recess. The principles of heating, lighting, and ventilation are the same as in the large pavilions.

Refuse Collection.—The ashes and refuse of each pavilion are collected in a Morell's cinder sifter for daily removal.

Exercise Grounds.—Each pavilion has its own exercise ground for convalescents.

Entrances.—The entrances to the Hospital are placed on either side of the lodge, the approach to the Administrative Block being separate from the ambulance (or patients') and general entrances.

Lodge.—The lodge, which also contains a waiting room and enquiry office, is occupied by the engineer, whose wife acts as lodge keeper, an extra room being provided for an unmarried assistant. Telephonic communication is provided between the lodge and Administrative Department.

The Administrative Block.—The Administrative Block is placed opposite the main entrance. It contains the Medical Officer's Department, Matron's Department (including kitchens, stores, and commissariat), sleeping and recreation rooms for nurses, and the officials' private laundry.

The Medical Department includes rooms for the Medical Superintendent, the Resident Medical Assistant, and an additional assistant in case of an epidemic. In this department also is the dispensary, connected by means of a serving hatch with the main corridor, for the distribution of medicines.

The Matron's Department includes business and dining rooms, Matron's sitting room, sewing room, and general store rooms. On the upper floors are the nurses' sleeping and recreation rooms and servants' accommodation. Care has been taken to provide sleeping rooms for the night nurses in a quiet position.

The Kitchen Department is separated from the main building by a cross ventilated serving lobby, which is connected by a serving hatch with the main corridors. The principal kitchen is lighted by roof-and-side-lights, and is fitted with large range, steam cooking apparatus, boiler, hot plate, and heated carving table, etc. Opening out of the kitchen is a large scullery fitted with close range. Here are provided special sinks for vegetable washing, also the usual sinks for washing up plates, dishes, etc. In connection with the kitchen are the cook's pantry, larder, hanging larder, dairy, and usual offices, fitted with enamelled slate shelving and other appliances. Adjoining these offices, and approached by a special or tradesmen's entrance, is the provision store for receiving and weighing goods and stores. In connection with this department is *The Officials' Laundry*, fitted up complete with Bradford's washing and wringing machines, boiler, drying closet, mangle, and every convenience.

Telephone Communication.—The Administrative Block is connected by telephone with the office of the Medical Officer of Health in the City. It is also in communication with the lodge by means of a mechanical telephone.

Patients' Laundry.—This laundry deals only with articles from the wards which have previously been disinfected either by being passed through the disinfecting machine or by being steeped in a disinfecting solution. This laundry is fitted up with washing and wringing machines worked by steam, hot air drying closets, mangles, ironing tables, sorting boxes, etc. In connection with this building are the large boilers for driving the machinery and for providing steam for heating wards, cooking, and heating water, etc., for the baths, etc., throughout the Hospital. The laundry is supplied with the Company's water and with rain water collected from the roofs and stored in an underground tank.

Stables and Ambulance Sheds.—The stabling consists of a three-stall stable and two large coach houses for ambulances, and harness room, with separate w.c., the whole enclosed by high walls and gates.

Mortuary.—The mortuary is placed at the north-east corner of the site. It is lighted from the roof, and is fitted with slate divisions and slate table for post-mortem examinations, sink with hot and cold water, etc.

Disinfecting House.—This building contains two chambers, with a Washington-Lyons steam disinfecting apparatus placed between. The chambers are each fitted up with shelving and closets for the reception of articles, including bedding and clothing from infected households in the City. Such articles are to be brought in closed vans to the infected side. They will then be passed through the disinfector and returned to their respective owners by separate conveyances. The infected bedding and clothing from the Hospital will be treated in a like manner. Care will be taken that articles after having passed through the disinfector are kept strictly apart from others in a separate store until their removal.

FURNISHINGS.

The beds and children's cots throughout the Hospital are of iron with chain and spiral spring mattresses. The upper mattresses are stuffed with Alva. The ward linen presses, etc., are made of polished pitch pine with flush panels, and as little surface as possible for dust to rest on. Each ward bed has its own bed-table, constructed after a special design. The wards have a supply of chairs, couches, screens, and other appliances for the comfort of the patients, including an electric bell communicating with the nurses' duty-room for every two beds. The wards altogether look very nice and cheerful.

The temperature of the wards is indicated by registering maximum and minimum thermometers, in locked cases, at each end of the ward.

Each pavilion has its own trucks for food (heated artificially), coal, removal of soiled linen, etc.

Patients' Hospital Clothing.—The patients and convalescents, whilst in Hospital, are provided with a complete outfit of clothing.

In the *Administrative Department* the furniture of the chief officers' and nurses' day rooms is oak, and that of the bed-rooms ash. Each nurse has a well-furnished sleeping room to herself.

The corridors and nurses' bed-rooms of the Administrative Department are covered with good linoleum floorcloth.

The comfort of patients and nurses has been considered in every possible way.

The grounds will be furnished with suitable shrubs and plants as soon as possible.

The date of opening is fixed for the 28th inst., after which the Hospital will be kept open for public inspection for a week. All classes are invited.

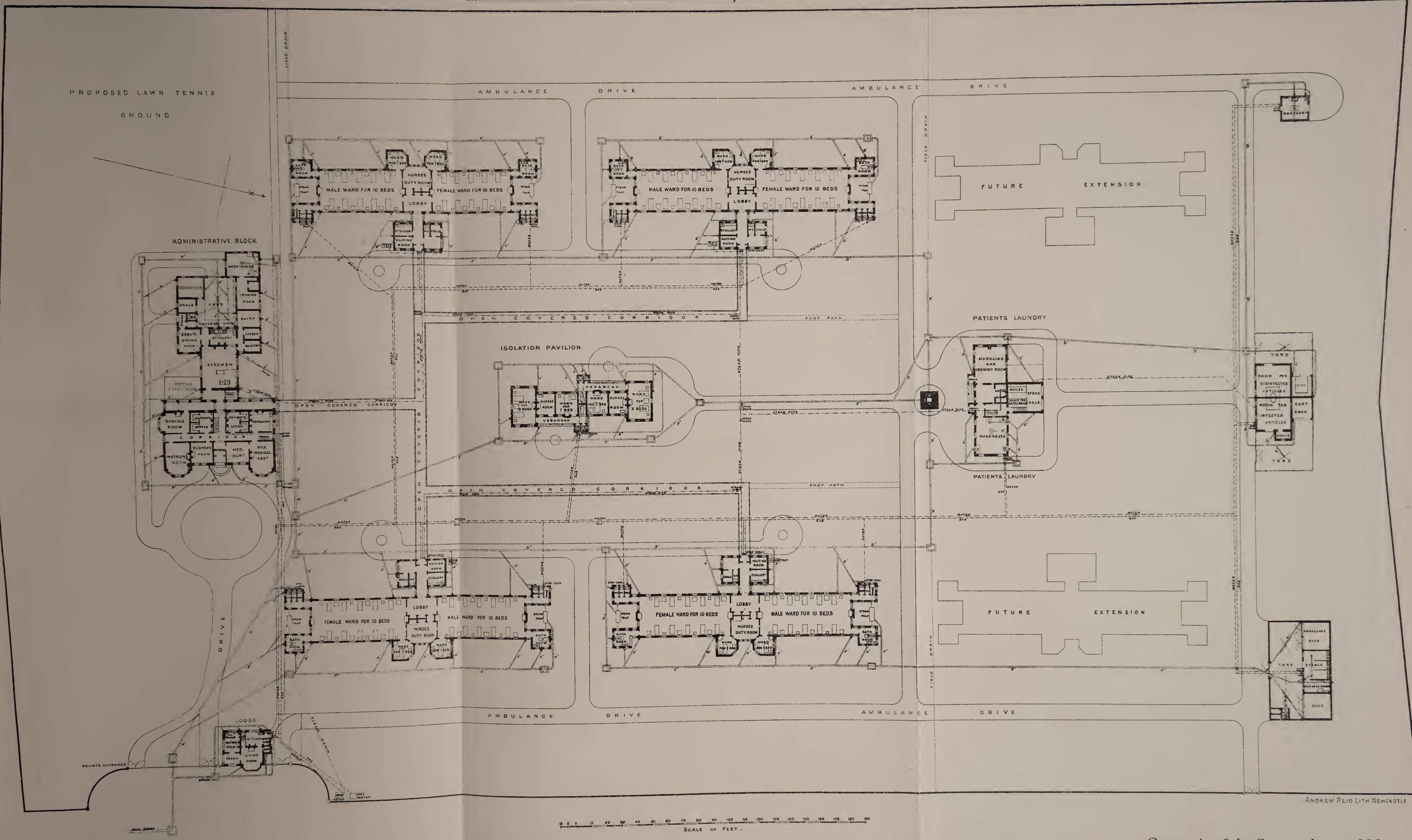
Games and Amusements (New or Old) for Indoor and Outdoor Pastime are the only things left to mention, and these are lacking. An appeal is made to the charitable on behalf of the convalescents, most of whom, on account of infection, are detained in Hospital many a weary day after they are otherwise fit to return home. Books, toys, etc., such as are usually destroyed after infectious disease in private families, will be thankfully received by the Matron, who will send for them on receiving intimation from any kind friend.

HENRY E. ARMSTRONG,

MEDICAL OFFICER OF HEALTH.

*Health Department, Town Hall,
Newcastle-upon-Tyne, 25th September, 1888.*

CITY HOSPITAL FOR INFECTIOUS DISEASES NEWCASTLE-UPON-TYNE,
erected on the Estate of the Corporation at Walker on Tyne.



A. B. GIBSON, Architect.

GROUND PLAN.

Opened 28th September, 1888.

ANDREW REID LITH NEWCASTLE

APPENDIX E.

City and County of Newcastle-upon-Tyne.

POWERS SUGGESTED TO BE SOUGHT

UNDER THE

PROPOSED NEWCASTLE-UPON-TYNE IMPROVEMENT BILL, 1888.

JULY, 1888.

Newcastle-upon-Tyne:

ANDREW REID, PRINTING COURT BUILDINGS, AKENSIDE HILL.
LONDON OFFICE: 4, QUEEN'S HEAD PASSAGE, PATERNOSTER ROW, E.C.

1889.

Newcastle-upon-Tyne Improvement Bill,

1888.

POWERS PROPOSED TO BE SOUGHT.

Infectious Disease—

Provision for intimation of outbreaks of disease by and to contiguous sanitary authorities.

Removal of infective living person or dead body by rail or other public conveyance (cabs, &c.)

Milk and Disease—

Power to compensate dairymen for substantial loss incurred by stoppage of business on account of infectious disease.

Milk dealers to supply information as to sources from which their milk was obtained.

Certain diseases and ailments of cattle to be notified by veterinary surgeon and by dairyman.

The Corporation to have control over sanitary arrangement and condition of country dairies supplying milk to Newcastle.

Sale of milk from infected or suspected farm or dairy to be prohibited without liability of Corporation or their officers to action at law therefor.

Country dairies dealing with Newcastle to notify to Newcastle Corporation all infectious disease and ailments suspected to be infectious, such as Sore-throat, peeling of the skin, &c.

Power to retain patients in hospital until free from infection.

Compulsory certification of all deaths on which no inquest is held.

Authority to certain officers to take proceedings under Newcastle Improvements Acts *re* "Infectious Diseases, &c."

Compulsory re-vaccination of healthy members of a household in which Small-pox appears.

Compulsory removal of infectious cases from tenement houses, or if magistrate is satisfied as to danger.

Alteration of Notification Form (see Medical Officer's Report to Local Government Board).

Power to maintain poor patients in hospital at cost of Corporation.

Refuge House, during disinfection and probation (as at Glasgow, Birkenhead, &c.)

Power to compensate midwives and others for substantial loss from stoppage of their work on account of infectious disease.

Power to institute inquiry into outbreaks of infectious disease at public institutions.

Schools and Disease—

Power to compel persons living outside the city, and sending their children to schools in the city, to notify infectious sickness; also to prevent pupils or teachers from attending school from infected houses (see Fortnightly Report, October, 1885.)

Power to compel a list of pupils from school principals in case of infectious disease.

Allowance of Government Grant to schools for scholars absent on account of infectious disease in their homes without closure of school (Annual Report of Medical Officer of Health for 1884, page 24).

Prohibition on parent or guardian permitting infected child, or child from an infected house, to attend school.

Prohibition on teacher permitting infected child, or child from infected house, to attend school.

To issue an order declaring a house or room an infected place, no person living in such infected place to be allowed to continue at an indoor occupation necessitating the handling of articles likely to retain or convey infection, and no removal of such articles from such place to be allowed without previous disinfection. The Corporation to compensate for direct material loss incurred thereby.

Cleansing (inter alia)—

The removal of dung, filth, and offensive matter at stated times.

New (and existing) Buildings and Regulations—

Provision against alteration of mode of occupancy of dwellings, &c., without sanction of Corporation.

Limit of tenements on common stairs in new houses, or in houses the mode of occupancy of which is proposed to be altered.

Height of rooms proposed to be used as dwelling rooms.

- Windows of rooms proposed to be used as dwelling rooms.
 Common stairs to be kept in repair.
 Public buildings (existing and proposed) *re* access, exit, fire, &c., lighting.
 Preventing building on improper "made ground."
 To provide concrete layer between earth and floor in new houses.
 Survey and certification of new houses before occupation.
 No new bedroom or other habitable room to be without fireplace.
 No new bedroom or other habitable room to have less floor area than 100 superficial feet.
 Power to reject building plans for sanitary reasons, *e.g.*, small bed-rooms, "well rooms," and other defects (see Annual Reports).
 Corporation to make house drains.

Open Spaces—

- Power to lay out back streets so as to make gardens.
 Power to deal with groups of old gardens.

Ventilation--

- Of public buildings (altered or new). See also Jarrow Improvement Act, 1884.
 Ventilation of every building (existing or proposed).
 Common stairs, &c., to be properly lighted and ventilated.
 Power to compel ventilation of "well rooms."
 Power to deal with groups of insanitary dwellings, *e.g.*, George Street West, Wall Knoll, Tuthill Chapel, Sandgate, &c.

Drainage of Houses—

- No house to be built hereafter without proper drain.
 Ventilation of drains of houses (existing or proposed).
 Inspection of drains.
 Penalty on alteration of drains, &c.
 Owners of houses to permit Corporation to apply smoke test.
 Power to compel remedy of defective drains without waiting till positive nuisance arises.

Sewers—

- Power to prevent discharge of steam into sewers.

Water, Soil Pipes, and W.C.'s, &c.—

- To provide water and sinks for each flat in tenement houses.
 W.C.'s convenient for tenement houses.
 Penalty for putting ashes, &c., into soil pipes.
 Cesspools not to be allowed except under certain conditions.
 "Pan" waterclosets to be prohibited.

Every soil pipe to be ventilated by full bore continuation, &c.

No soil pipe to be allowed to pass down the interior of a house or beneath the basement except with the special sanction of the Corporation and under certain precautions.

The flush pipe of every W.C. to be of a minimum internal diameter of $1\frac{1}{4}$ inches.

No cistern supplying a W.C. to be used for holding water for dietic purposes.

Power to close wells on certificate of Medical Officer of Health that the water is dangerous to health.

Corporation to have full control over domestic water pipes and apparatus.

Every pipe for carrying off waste water, whether from a sink, bath, lavatory, or cistern, to be taken through an external wall to discharge where practicable in the outer air over a channel leading to a gully grating at a suitable distance, and every gully grating, or other inlet to the drains, to be properly trapped. No stack pipe to be used as a soil pipe from a W.C., or, without the consent of the Corporation, to be connected with a sewer or with a drain leading into or connected with a sewer (Brighton, 1884).

Common Lodging Houses—

No common lodging house to be licensed until inspected and certified by the Medical Officer of Health.

Small Houses—

Single apartments let as houses to be sufficiently lighted and ventilated. Minimum cubic contents of small houses to be fixed.

Power to deal with small houses beyond scope of Tenement Bye-laws (*e.g.*, cellar kitchens in George Street West, houses having no yards or external place for W.C., &c.)

Schools—

Power to limit crowding in private day schools and Sunday schools.

Slaughter-houses and Meat—

Medical Officer of Health to report periodically on condition of slaughter-houses.

If abattoir provided, no other places to be used. Carcasses brought into City for sale to pay dues.

All butchers' meat sent to the City from the country to be reported to the Medical Officer of Health, and to be accompanied with either (1) a certificate from a veterinary surgeon (under the Contagious Diseases (Animals) Act) to the effect that he has examined

the animal both before and after death, and that at the time of slaughter it was free from disease, or in case of accident satisfactorily accounting for the death of the animal; or (2) the lungs, heart, liver, and kidneys of the animal to be left attached by undivided fleshy connexion between these organs and the part of the carcase to which they belong.

Power to magistrates to revoke license for slaughter-house, and to abolish offensive trades.

Power to deal with slaughter-houses in populous parts of the City.

Slaughter and destruction of diseased cattle brought to market, and protection against legal proceedings if cattle so slaughtered are not found diseased.

Cow-houses—

Power to make bye-law regulating position of all cow-houses (Birkenhead), and to cause closure of all cow-houses in populous localities.

Power for Corporation to decide what constitutes an offensive trade under the Public Health Act, 1875, section 112.

Smoke Nuisance, &c.—

To compel existing private chimneys of wash-houses and outbuildings when causing a nuisance, to be built higher or removed.

Nuisance from Street Musicians, Street Callers, and from Dogs or other Animals—

Dogs or other animals to be removed if a nuisance or annoyance to the inhabitants of the neighbourhood in which they are kept.

Musicians or vendors to cease from sounding their musical instruments, singing, or shouting in any street when required to do so by any householder or occupier in that street.

Marine Store Shops—

Power to make regulations for marine store shops and other places liable to "recurring nuisance."

Rainpipes—

Power to compel the owner to fix and keep in good repair rain water spouts and pipes.

No down pipe to be in direct connexion with a drain.

HENRY E. ARMSTRONG,

July, 1888.
MEDICAL OFFICER OF HEALTH.

